RDR-HX715

RMT-D218A

SERVICE MANUAL

US Model
Canadian Model

Self Diagnosis Supported model

SPECIFICATIONS

System

Laser: Semiconductor laser
Channel coverage:
NTSC
VHF: 2 to 13/UHF: 14 to 69/CATV: A-8 to A-1, A to W, W+1 to W+84
Video reception: Frequency synthesizer system
Audio reception: Split carrier system
Antenna: 75-ohm antenna terminal for VHF/UHF
Timer: Clock: Quartz locked/Timer indication: 12-hour cycle (digital)/Power back-up duration: 1 hour
Video recording format: MPEG Video
Audio recording format/applicable bit rate: Dolby Digital 2 ch/256 kbps

Inputs and outputs

LINE OUT 1/2
(AUDIO): Phono jack/2 Vrms/10 kilohms
(VIDEO): Phono jack/1.0 Vp-p
(S VIDEO): 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p

LINE IN 1/2/3
(AUDIO): Phono jack/2 Vrms/more than 22 kilohms
(VIDEO): Phono jack/1.0 Vp-p
(S VIDEO): 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p
DV IN: 4-pin/i.LINK S100
DIGITAL OUT (OPTICAL): Optical output jack/–18 dBm (wave length: 660 nm)
DIGITAL OUT (COAXIAL): Phono jack/0.5 Vp-p/75 ohms

COMPONENT VIDEO OUT (Y, P_B, P_R):
Phono jack/Y: 1.0 Vp-p/P_B, P_R: interlace*=0.648 Vp-p, progressive or interlace**=0.7 Vp-p
COMPONENT VIDEO IN (Y, P_B, P_R):
Phono jack/Y: 1.0 Vp-p/P_B, P_R: interlace*=0.648 Vp-p, progressive or interlace**=0.7 Vp-p
* "Y/Pb/Pr Out Black Level" is "On"
** "Y/Pb/Pr Out Black Level" is "Off"
SET TOP BOX CONTROL:
Mini jack
HDMI OUT:
Type A (19-pin)

General

Power requirements: 120 V AC, 60 Hz
Power consumption: 57 W
Dimensions (approx.): 430 × 75 × 328 mm (17 × 3 × 13 in.) (width/height/depth) incl. projecting parts
Hard disk drive capacity: 160 GB
Mass (approx.): 5.3 kg (11.68 lb)
Operating temperature:
5°C to 35°C (41°F to 95°F)
Operating humidity: 25% to 80%
Supplied accessories:
Audio/video cord (1)
Power cord (1)
Antenna cable (1)
Set top box controller (1)
Remote commander (remote) (1)
Size AA (R6) batteries (2)

Specifications and design are subject to change without notice.

DVD RECORDER

SONY

WARNING!!

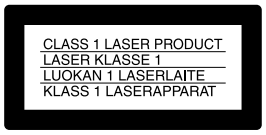
WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

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1. DISK REMOVAL PROCEDURE IF THE TRAY CANNOT BE EJECTED (FORCED EJECTION)

1. Remove the upper case.
2. Insert the stiff wire in the hole and eject the tray.

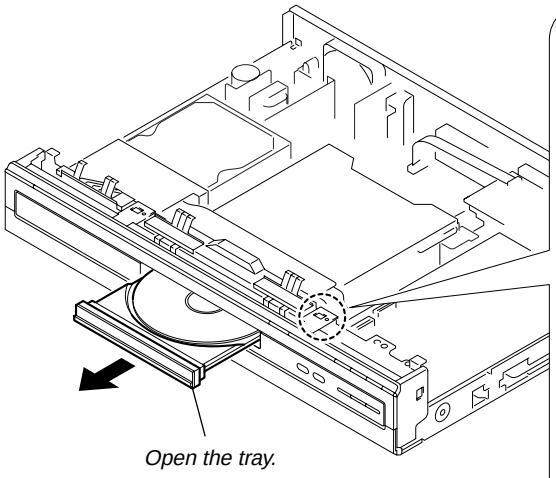


Fig. 1

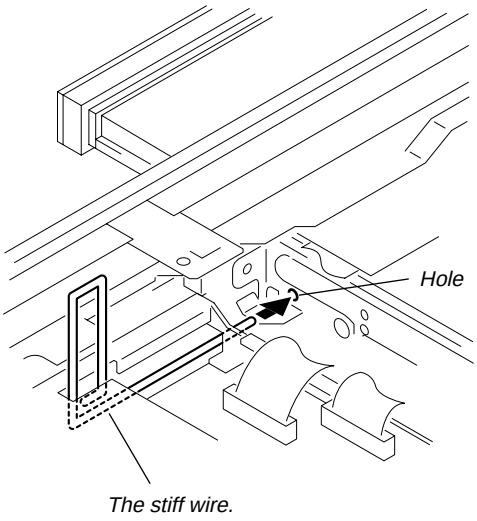
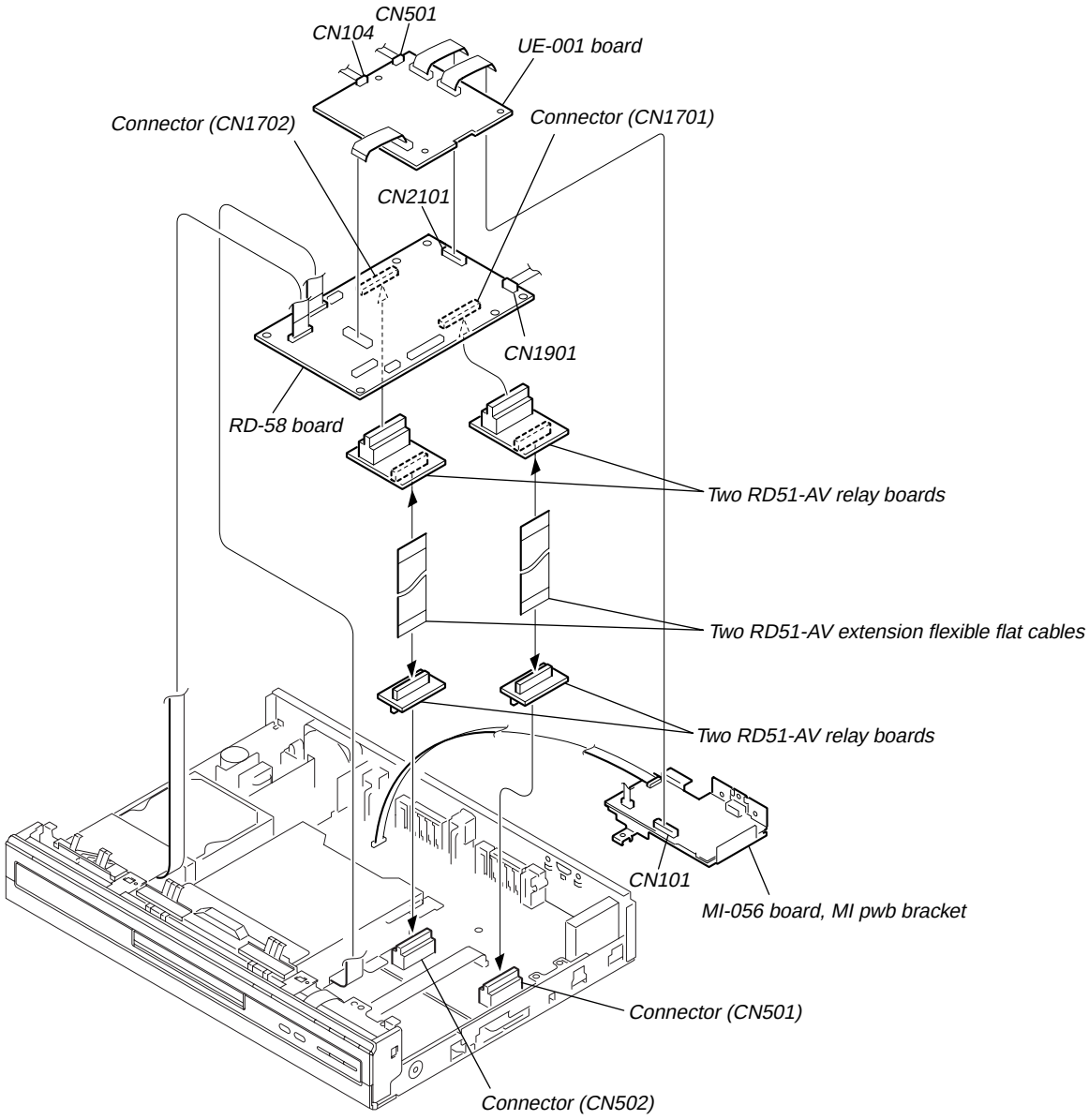


Fig. 2

2. BOARDS CONNECTION



MEMO

SECTION 1
GENERAL

This section is extracted from instruction manual.
(RDR-HX715 : 2-635-892-11 (1))

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
The AC power cord must be changed only at a qualified service shop.

CAUTION

The use of optical instruments with this product will increase eye hazard. As the laser beam used in this DVD recorder is harmful to eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

This label is located on the laser protective housing inside the enclosure.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For customers in the U.S.A

Owner's Record

The model and serial numbers are located at the rear of the unit.
Record the serial number in the space provided below. Refer to them whenever you call upon your Sony dealer regarding this product.
Model No. RDR-HX715
Serial No._____

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

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Precautions

This equipment has been tested and found to comply with the limits set out in the EMC Directive using a connection cable shorter than 3 meters.

On safety

Should any solid object or liquid fall into the cabinet, unplug the recorder and have it checked by qualified personnel before operating it any further.

About the hard disk drive

The hard disk has a high storage density, which enables long recording durations and quick access to the written data. However, it can easily be damaged by shock, vibration or dust, and should be kept away from magnets. To avoid losing important data, observe the following precautions.

- Do not apply a strong shock to the recorder.
- Do not place the recorder in a location subject to mechanical vibrations or in an unstable location.
- Do not place the recorder on top of a hot surface, such as a VCR or amplifier (receiver).
- Do not use the recorder in a place subject to extreme changes in temperature (temperature gradient less than 10 °C/hour).
- Do not move the recorder with its AC power cord connected.
- Do not disconnect the AC power cord while the power is on.
- When disconnecting the AC power cord, turn off the power and make sure that the hard disk drive is not operating (the clock is displayed in the front panel display and all recording or dubbing has stopped).
- Do not move the recorder for one minute after you have unplugged the AC power cord.
- Do not attempt to replace or upgrade the hard disk by yourself, as this may result in malfunction.

If the hard disk drive should malfunction, you cannot recover lost data. The hard disk drive is only a temporary storage space.

About repairing the hard disk drive

- The contents of the hard disk drive may be checked in case of repair or inspection during a malfunction or modification. However, the contents will not be backed up or saved by Sony.
- If the hard disk needs to be formatted or replaced, it will be done at the discretion of Sony. All contents of the hard disk drive will be erased, including contents that violate copyright laws.

On power sources

- The recorder is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the recorder itself has been turned off.
- If you are not going to use the recorder for a long time, be sure to disconnect the recorder from the wall outlet. To disconnect the AC power cord, grasp the plug itself; never pull the cord.
- Before disconnecting the AC power cord, check that the recorder's hard disk is not operating (recording or dubbing) on the front panel display.

On placement

- Place the recorder in a location with adequate ventilation to prevent heat build-up in the recorder.
- Do not place the recorder on a soft surface such as a rug that might block the ventilation holes.
- Do not place the recorder in a confined space such as a bookshelf or similar unit.
- Do not place the recorder in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.
- Do not place the recorder in an inclined position. It is designed to be operated in a horizontal position only.
- Keep the recorder and discs away from equipment with strong magnets, such as microwave ovens, or large loudspeakers.
- Do not place heavy objects on the recorder.
- To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.

On recording

Make trial recordings before making the actual recording.

On compensation for lost recordings

Sony is not liable and will not compensate for any lost recordings or relevant losses, including when recordings are not made due to reasons including recorder failure, or when the contents of a recording are lost or damaged as a result of recorder failure or repair undertaken to the recorder. Sony will not restore, recover, or replicate the recorded contents under any circumstances.

Copyrights

- Television programs, films, video tapes, discs, and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or program owner.
- This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

Copy guard function

Since the recorder has a copy guard function, programs received through an external tuner (not supplied) may contain copy protection signals (copy guard function) and as such may not be recordable, depending on the type of signal.

IMPORTANT NOTICE

Caution: This recorder is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen. Plasma display panels and projection televisions are especially susceptible to this.

If you have any questions or problems concerning your recorder, please consult your nearest Sony dealer.

Important Safety Instructions

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/ accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

About this manual

- In this manual, the internal hard disk drive is written as "HDD," and "disc" is used as a general reference for the HDD, DVDs, or CDs unless otherwise specified by the text or illustrations.
- Instructions in this manual describe the controls on the remote. You can also use the controls on the recorder if they have the same or similar names as those on the remote.
- The on-screen display illustrations used in this manual may not match the graphics displayed on your TV screen.
- The explanations regarding DVDs in this manual refer to DVDs created on this recorder. The explanations do not apply to DVDs that are created on other recorders and played back on this recorder.

Ways to Use Your DVD Recorder

Recording/Playback	Compatible media and reference pages
Quick access to recorded titles – Title List	HDD +RW -RWVR -RWVideo +R -R "3. Playing the Recorded Program (Title List)" on page 34
Easily search for programs with the TV Guide On Screen system – TV Guide	HDD +RW -RWVR -RWVideo +R -R The TV Guide On Screen system displays a free interactive program guide. Search for your favorite program by listing them alphabetically, by category or by keyword (page 46). You can then set the timer to record that program just by selecting it (page 50).
Play the beginning of a title while it is being recorded – Chasing Playback	HDD -RWVR "Playing from the beginning of the program you are recording (Chasing Playback)" on page 65
Watching one title while recording another – Simultaneous Rec and Play	HDD +RW -RWVR -RWVideo +R -R VCD CD DATA DVD DATA CD "Playing a previous recording while making another (Simultaneous Rec and Play)" on page 66

Dubbing/Editing	Compatible media and reference pages
Creating your own program – Playlist	HDD -RWVR "Creating and Editing a Playlist" on page 77
Copying a recorded title to and from the HDD – Dubbing (HDD ⟷ DVD)	HDD +RW -RWVR -RWVideo +R -R "Dubbing (HDD ⟷ DVD)" on page 79
Automatic dubbing of DV tapes – DV/Digital8 Dubbing	HDD +RW -RWVR -RWVideo +R -R "DV/Digital8 Dubbing" on page 84

A list of recordable and playable discs is on page 10.

Quick Guide to Disc Types

Recordable and playable discs

Type	Disc Logo	Icon used in this manual	Formatting (new discs)	Compatibility with other DVD players (finalizing)	Recording Features: Rewrite (page 49)	Recording Features: Auto Chapter (page 96)	Recording Features: Manual Chapter (page 76)	Recording Features: Record 16:9 sizes (page 53)	Editing Features: Change title name (page 73)	Editing Features: Delete title (page 75)	Editing Features: A-B Erase (page 74)	Editing Features: Playlist (page 77)
Hard disk drive (internal)	HDD	HDD	(Formatting unnecessary)	Dub HDD contents to a DVD to play on other DVD players	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DVD+RW	DVD+ReWritable / DVD+ReWritable High Speed	+RW	Automatically formatted in +VR mode	Playable on DVD+RW compatible players (automatically finalized)	Yes	Yes	No	No	Yes	Yes	Yes	No
DVD-RW VR mode	DVD-RW *2	-RWVR	Format in VR mode (page 31)	Playable only on VR mode compatible players (finalization unnecessary)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DVD-RW Video mode	DVD-RW *2 / RW 2	-RWVideo	Format in Video mode (page 31)	Playable on most DVD players (finalization necessary) (page 40)	Yes	Yes	No	Yes*3	Yes	Yes	No	No
DVD+R / DVD+R DL	DVD+R / DVD+R DL	+R	Automatically formatted	Playable on most DVD players (finalization necessary) (page 40)	No	Yes	No	No	Yes	Yes*4	No	No
DVD-R	DVD-R	-R	Automatically formatted	Playable on most DVD players (finalization necessary) (page 40)	No	Yes	No	Yes*3	Yes	Yes*4	No	No

Usable disc versions (as of March 2005)
- 8x-speed or slower DVD+RWs
- 6x-speed or slower DVD-RWs (Ver.1.1, Ver.1.2 with CPRM*1)
- 16x-speed or slower DVD+Rs
- 16x-speed or slower DVD-Rs (Ver.2.0, Ver.2.1)
- 2.4x-speed DVD+R DL (Double Layer) discs

"DVD+RW," "DVD-RW," "DVD+R," "DVD+R DL," and "DVD-R" are trademarks.

*1 CPRM (Content Protection for Recordable Media) is a coding technology that protects copyrights for images.

*2 This logo applies to 4x and 6x speed DVD-RW discs.

Discs that cannot be recorded on
- 8 cm discs
- DVD-Rs in VR mode (Video Recording format)

*3 Only if the recording mode is LSP, SP, HSP, or HQ, and "DVD Rec. Picture Size" is set to "16:9."

*4 Erasing titles does not free up disc space.

➡continued

Playable discs

Type	Disc Logo	Icon used in this manual	Characteristics
DVD VIDEO	DVD VIDEO	DVD	Discs such as movies that can be purchased or rented
VIDEO CD	COMPACT DISC DIGITAL VIDEO	VCD	VIDEO CDs or CD-Rs/CD-RWs in VIDEO CD/Super VIDEO CD format
CD	COMPACT DISC DIGITAL AUDIO	CD	Music CDs or CD-Rs/CD-RWs in music CD format that can be purchased
DATA DVD	—	DATA DVD	DVD+RWs/DVD+Rs/DVD-RWs/DVD-Rs/ DVD-ROMs containing JPEG image files
DATA CD	—	DATA CD	CD-ROMs/CD-Rs/CD-RWs containing MP3 audio tracks or JPEG image files
8 cm DVD+RW/ DVD-RW/DVD-R	—	—	8 cm DVD+RW, DVD-RW, and DVD-R recorded with a DVD video camera. (Still images recorded with a DVD video camera cannot be played.)

"DVD VIDEO" and "CD" are trademarks.

Discs that cannot be played

- PHOTO CDs
- CD-ROMs/CD-Rs/CD-RWs that are not recorded in music CD or Video CD format, or do not contain MP3 or JPEG files
- Data part of CD-Extras
- DVD-ROMs that do not contain JPEG files or are not in DVD Video format
- DVD Audio discs
- DVD-RAMs
- HD layer on Super Audio CDs
- DVD VIDEOs with a different region code (page 13)
- DVD-Rs recorded in VR mode (Video Recording format)
- A disc recorded in a color system other than NTSC, such as PAL

Maximum recordable number of titles

Disc	Number of titles*
HDD	300
DVD-RW/DVD-R	99
DVD+RW/DVD+R	49
DVD+R DL	49

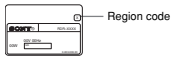
* The maximum length for each title is eight hours.

Note on playback operations of DVD VIDEOs/ VIDEO CDs

Some playback operations of DVD VIDEOs/ VIDEO CDs may be intentionally set by software producers. Since this recorder plays DVD VIDEOs/VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available. Also, see the instructions supplied with the DVD VIDEOs/ VIDEO CDs.

Region code (DVD VIDEO only)

Your recorder has a region code printed on the rear of the unit and will only play DVD VIDEOs (playback only) labeled with identical region codes. This system is used to protect copyrights. DVD VIDEOs labeled (ALL) will also play on this recorder.
If you try to play any other DVD VIDEO, the message "Playback prohibited by region code." will appear on the TV screen. Depending on the DVD VIDEO, no region code indication may be labeled even though playing the DVD VIDEO is prohibited by area restrictions.



Music discs encoded with copyright protection technologies

This product is designed to play back discs that conform to the Compact Disc (CD) standard. Recently, various music discs encoded with copyright protection technologies are being marketed by some record companies. Please be aware that among those discs, there are some that do not conform to the CD standard and may not be playable by this product.

Note on DualDiscs

A DualDisc is a two sided disc product which mates DVD recorded material on one side with digital audio material on the other side. However, since the audio material side does not conform to the Compact Disc (CD) standard, playback on this product is not guaranteed.

Notes

- Some DVD+RWs/DVD+Rs, DVD-RWs/DVD-Rs, or CD-RWs/CD-Rs cannot be played on this recorder due to the recording quality or physical condition of the disc, or the characteristics of the recording device and authoring software. The disc will not play if it has not been correctly finalized. For more information, see the operating instructions for the recording device.
- You cannot mix VR mode and Video mode on the same DVD-RW. To change the disc's format, reformat the disc (page 31). Note that the disc's contents will be erased after reformatting.
- You cannot shorten the time required for recording even with high-speed discs.
- It is recommended that you use discs with "For Video" printed on their packaging.
- You cannot add new recordings to DVD+Rs, DVD-Rs, or DVD-RWs (Video mode) that contain recordings made on other DVD equipment.
- In some cases, you may not be able to add new recordings to DVD+RWs that contain recordings made on other DVD equipment. If you do add a new recording, note that this recorder will rewrite the DVD menu.
- You cannot edit recordings on DVD+RWs, DVD-RWs (Video mode), DVD+Rs, or DVD-Rs that are made on other DVD equipment.
- If the disc contains PC data unrecognizable by this recorder, the data may be erased.
- You may not be able to record on some recordable discs, depending on the disc.

Hooking Up the Recorder

Follow steps 1 to 7 to hook up and adjust the settings of the recorder.

Notes

- Plug cords securely to prevent unwanted noise.
- Refer to the instructions supplied with the components to be connected.
- You cannot connect this recorder to a TV that does not have a video input jack.
- Be sure to disconnect the power cord of each component before connecting.

Step 1: Unpacking

Check that you have the following items:

- Audio/video cord (phono plug × 3 ⟷ phono plug × 3) (1)
- Power cord (1)
- Antenna cable (1)
- Remote commander (remote) (1)
- Set top box controller (1)
- Size AA (R6) batteries (2)

Step 2: Connecting the Antenna Cable and Set Top Box Controller

Select one of the following antenna hookups. Do not connect the power cord until you reach "Step 5: Connecting the Power Cord" on page 21.

If you have	Hookup
Cable box or satellite receiver with a video/audio output	A (page 15)
Cable box with an antenna output only	B (page 16)
Cable without cable box, or antenna only (no cable TV)	C (page 17)

Using the cable box/satellite receiver control function

The cable box/satellite receiver control function can be used with hookup A or B. It allows the recorder to control a cable box or satellite receiver via the supplied set top box controller. The recorder controls channels on the cable box or satellite receiver for timer recording. You can also use the recorder's remote control to change channels on the cable box/satellite receiver whenever the cable box/satellite receiver and recorder are turned on.
To use the cable box/satellite receiver control function, you need to connect the set top box controller and set the code number and output channel (page 25). After setting up the cable box/ satellite receiver control, check that the recorder can correctly control the cable box or satellite receiver (page 26).

NOTE TO CATV SYSTEM INSTALLER (IN USA)

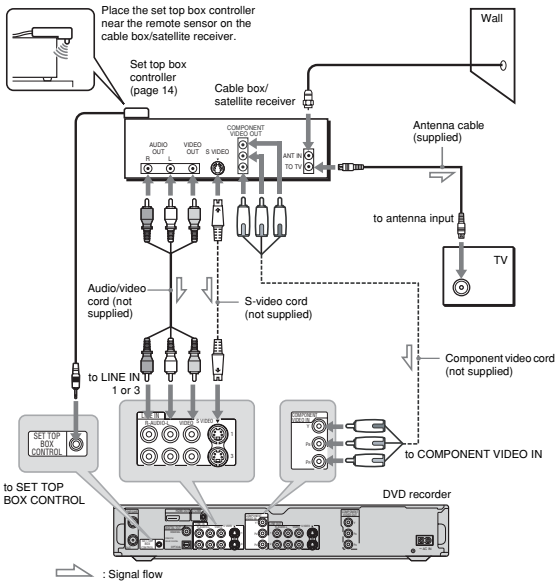
This reminder is provided to call the CATV system installer's attention to Article 820- 40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Notes

- If your antenna is a flat cable (300-ohm twin lead cable), use an external antenna connector (not supplied) to connect the antenna to the recorder.
- If you have separate cables for VHF and UHF antennas, use a UHF/VHF band mixer (not supplied) to connect the antenna to the recorder.
- If you have made hookup A or B and want to use the TV Guide On Screen system, the cable box must be turned on, the set top box controller must be connected, and "Set Top Box Control" in "Settings" setup must be set to "On" (page 90) to download the TV Guide On Screen data.

A: Cable box or satellite receiver with a video/audio output

With this hookup, you can record any channel on the cable box or satellite receiver. Be sure that the satellite receiver or cable box is turned on.
To watch cable or satellite programs, you need to match the channel on the recorder (L1 or L3) to the input jack connected to the cable box or satellite receiver (LINE IN 1 or 3). Note that the TV Guide On Screen system does not display listings for satellite programming.


Place the set top box controller near the remote sensor on the cable box/satellite receiver.
Wall
Set top box controller (page 14)
Cable box/ satellite receiver
Antenna cable (supplied)
to antenna input
TV
Audio/video cord (not supplied)
S-video cord (not supplied)
Component video cord (not supplied)
to LINE IN 1 or 3
to COMPONENT VIDEO IN
to SET TOP BOX CONTROL
DVD recorder
: Signal flow

Note

Do not connect a hi-definition tuner using the component video cords. This recorder only accepts standard definition interlace signals.

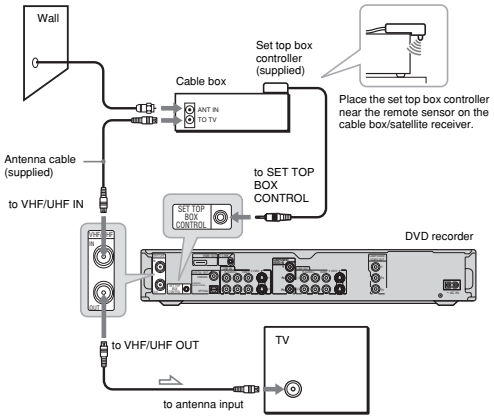
Hints

- If your cable box or satellite receiver has an S-video jack or component output jacks, you can use an S-video cord (not supplied) or component video cord (not supplied) instead of the audio/video cord. When you connect using a component video cord, connect the audio cords to the LINE IN jacks.
- If you connect an S-video cord to the LINE IN 1 jack or component video cord to the COMPONENT VIDEO IN jacks, set "Line1 Input" in "Video" setup to "S Video" or "Component" (page 93). If you connect an S-video cord to the LINE IN 3 jack, set "Line3 Input" in "Video" setup to "S Video" (page 93).

→continued

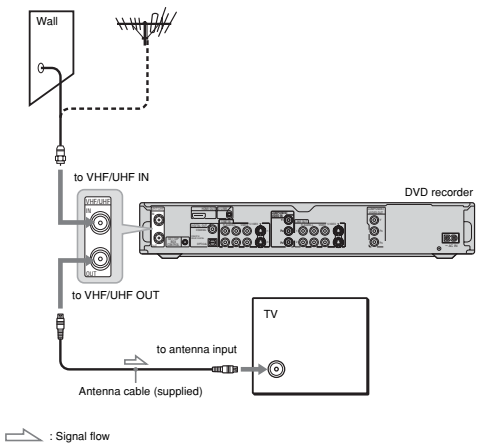
B: Cable box with an antenna output only

With this hookup, you can record any channel on the satellite receiver or cable box. Be sure that the satellite receiver or cable box is turned on.
To watch cable programs, you need to match the channel on the recorder (2ch, 3ch, or 4ch) to the antenna output channel on the cable box (2ch, 3ch, or 4ch).



C: Cable without cable box, or antenna only (no cable TV)

Use this hookup if you watch cable channels without a cable box. Also use this hookup if you are using a VHF/UHF antenna or separate VHF and UHF antennas.
With this hookup, you can record any channel by selecting the channel on the recorder.



Step 3: Connecting the Video Cords/HDMI Cords

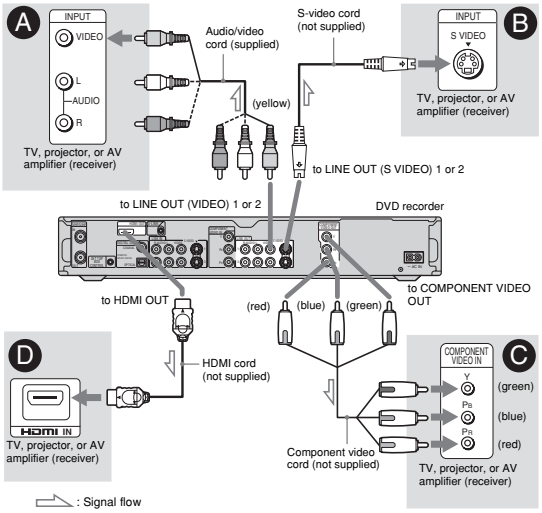
Select one of the following patterns Ⓐ through Ⓓ, according to the input jack on your TV monitor, projector, or AV amplifier (receiver). This will enable you to view pictures.

Ⓐ Connecting to a video input jack
You will enjoy standard quality images.

Ⓑ Connecting to an S VIDEO input jack
You will enjoy high quality images.

Ⓒ Connecting to component video input jacks (Y, P_B, P_R)
You will enjoy accurate color reproduction and high quality images.
If your TV accepts progressive 480p format signals, you must use this connection and then press PROGRESSIVE on the remote to send progressive video signals. For details, see "Using the PROGRESSIVE button" on page 19.

Ⓓ Connecting to an HDMI input jack
Use a certified HDMI cord (not supplied) to enjoy high quality digital picture and sound through the HDMI OUT jack.



When playing "wide screen" images
Some recorded images may not fit your TV screen. To change the picture size, see page 91.

If you are connecting to a VCR
Connect your VCR to the LINE IN jack on the recorder (page 28).

Notes
- Do not connect more than one type of video cord between the recorder and your TV at the same time.
- You cannot use the PROGRESSIVE button with the connections Ⓐ and Ⓑ.
- You cannot connect the HDMI OUT jack (connection Ⓓ) to DVI jacks that are not HDCP compliant (e.g., DVI jacks on PC displays).

* This DVD recorder is based on version 1.1 of High-Definition Multimedia Interface Specifications.

This DVD recorder incorporates High-Definition Multimedia Interface (HDMI™) technology.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

Using the PROGRESSIVE button

By using the PROGRESSIVE button, you can select the signal format in which the recorder outputs video signals: interlace or progressive.

1 Connect the recorder using the COMPONENT VIDEO OUT jacks (pattern Ⓒ on page 18).

2 Press the PROGRESSIVE button repeatedly. "PROGRESSIVE" appears in the front panel display when the recorder outputs progressive signals.

◆ Progressive
Select this when:
– your TV accepts progressive signals, and,
– the TV is connected to the COMPONENT VIDEO OUT jacks.
Note that the pictures will not be clear or no picture will appear if you select progressive signal output when either of the above conditions is not met.

◆ Interlace
Set to this position when:
– your TV does not accept progressive signals, or,
– your TV is connected to jacks other than the COMPONENT VIDEO OUT jacks (LINE OUT (VIDEO or S VIDEO)).

Hint
When you select progressive signal output, you can fine-tune the signal according to the type of software you are watching (page 92).

Step 4: Connecting the Audio Cords

Select one of the following patterns Ⓐ or Ⓑ, according to the input jack on your TV monitor, projector, or AV amplifier (receiver). This will enable you to listen to sound.

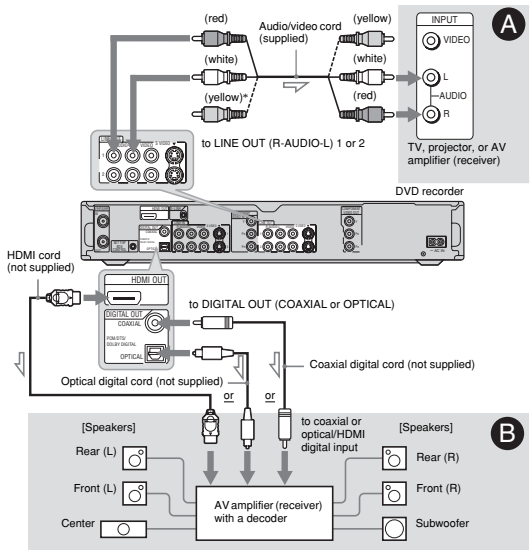
Ⓐ Connecting to audio L/R (left/right) input jacks

This connection will use your TV's or stereo amplifier's (receiver's) two speakers for sound. You can enjoy the following surround effects (page 61).

- TV: Dynamic, Wide, Night
- Stereo amplifier (receiver): Standard, Night

Ⓑ Connecting to a digital audio input jack

If your AV amplifier (receiver) has a Dolby*1 Digital or DTS*2 decoder and a digital input jack, use this connection. You can enjoy Dolby Digital (5.1ch) and DTS (5.1ch) surround effects.



* The yellow plug is used for video signals (page 18).

Hint

For correct speaker location, see the operating instructions supplied with the connected components.

Notes

- Do not connect your TV's audio output jacks to the LINE IN (R-AUDIO-L) jacks at the same time. This will cause unwanted noise to come from your TV's speakers.
- In the connection Ⓐ, do not connect the LINE IN (R-AUDIO-L) and LINE OUT (R-AUDIO-L) jacks to your TV's audio output jacks at the same time. This will cause unwanted noise to come from your TV's speakers.
- In the connection Ⓑ, after you have completed the connection, make the appropriate settings under "Audio Connection" in "Easy Setup" (page 25). Otherwise, no sound or a loud noise will come from your speakers.
- With the connection Ⓑ, the surround sound effects of this recorder cannot be used.
- When you connect the recorder to an AV amplifer (receiver) using an HDMI cord, you will need to do one of the following:
  - Connect the AV amplifier (receiver) to the TV with the HDMI cord.
  - Connect the recorder to the TV with a video cord other than HDMI cord (component video cord, S VIDEO cord, or audio/video cord).

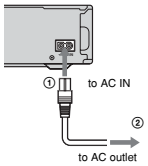
*1 Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

*2 "DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

Step 5: Connecting the Power Cord

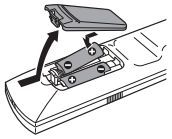
Connect the supplied power cord to the AC IN terminal of the recorder. Then plug the recorder and TV power cords into an AC outlet. After you connect the power cord, **you must wait for a short while before operating the recorder.** You can operate the recorder once the front panel display lights up and the recorder enters standby mode.

If you connect additional equipment to this recorder (page 28), be sure to connect the power cord only after all connections are complete.



Step 6: Preparing the Remote

You can control the recorder using the supplied remote. Insert two size AA (R6) batteries by matching the ⊕ and ⊖ ends on the batteries to the markings inside the battery compartment. When using the remote, point it at the remote sensor ▣ on the recorder.



Notes

- If the supplied remote interferes your other Sony DVD recorder or player, change the command mode number for this recorder (page 24).
- Use the batteries correctly to avoid possible leakage and corrosion. Do not touch the liquid with bare hands should leakage occur. Observe the following:
  - Do not use a new battery with an old battery, or batteries of different manufacturers.
  - Do not attempt to recharge the batteries.
  - If you do not intend to use the remote for an extended period of time, remove the batteries.
  - If battery leakage occurs, wipe out any liquid inside the battery compartment, and insert new batteries.
- Do not expose the remote sensor (marked ▣ on the front panel) to strong light, such as direct sunlight or lighting apparatus. The recorder may not respond to the remote.

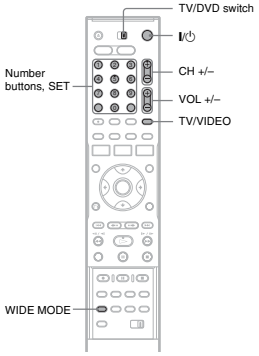
Controlling TVs with the remote

You can adjust the remote's signal to control your TV.

If you connected the recorder to an AV amplifier (receiver), you can use the supplied remote to control the AV amplifier's (receiver's) volume.

Notes

- Depending on the connected unit, you may not be able to control your TV or AV amplifier (receiver) with some or all of the buttons below.
- If you enter a new code number, the code number previously entered will be erased.
- When you replace the batteries of the remote, the code number may be reset to the default setting. Set the appropriate code number again.



1 Slide the TV/DVD switch to TV.

2 Hold down I/⏻.

3 Enter your TV's manufacturer code (see "Code numbers of controllable TVs" below) using the number buttons.

4 Release I/⏻.

When the TV/DVD switch is set to TV, the remote performs the following:

Buttons	Operations
I/⏻	Turns your TV on or off
VOL +/–	Adjusts the volume of your TV
CH +/–	Selects the channel on your TV
WIDE MODE	Switches to or from the wide mode of a Sony wide-screen TV
TV/VIDEO	Switches your TV's input source
Number buttons and SET	Selects the channel on your TV

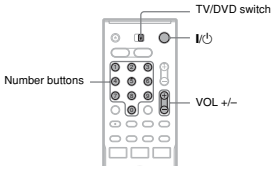
Code numbers of controllable TVs

If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

Manufacturer	Code number
Sony	01 (default)
Akai	04
AOC	04
Centurion	12
Coronado	03
Curtis-Mathes	12, 14
Daewoo	04, 22
Daytron	03, 12
Fisher	11
General Electric	04, 06, 10
Gold Star/LG	03, 04, 17
Hitachi	02, 03, 04
J.C.Penney	04, 10, 12
JVC	09
KMC	03
Magnavox	03, 04, 08, 12, 21
Marantz	04, 13
MGA/Mitsubishi	04, 12, 13, 17
NEC	04, 12
Panasonic	06, 19
Philco	02, 03, 04, 08
Philips	08, 21
Pioneer	06, 16
Portland	03
Proscan	10
Quasar	06, 18
Radio Shack	05, 10, 14
RCA	04, 10
Sampo	12
Samsung	03, 04, 12, 20
Sanyo	11, 14
Scott	12
Sears	07, 10, 11
Sharp	03, 05, 18
Sylvania	08, 12
Teknika	03, 08, 14
Toshiba	07, 18
Wards	03, 04, 12
Yorx	12
Zenith	14, 15

➡continued

Controlling the volume of your AV amplifier (receiver) with the remote



1 Slide the TV/DVD switch to DVD.

2 Hold down I/⏻, and enter the manufacturer code (see the table below) for your AV amplifier (receiver) using the number buttons.

3 Release I/⏻.
The VOL +/– buttons control the AV amplifier's volume.
If you want to control the TV's volume, slide the TV/DVD switch to TV.

Hint
If you want to control the TV's volume even when the TV/DVD switch is set to DVD, repeat the steps above and enter the code number 90 (default).

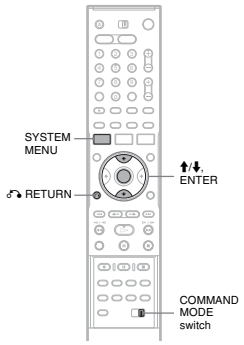
Code numbers of controllable AV amplifiers (receivers)

If more than one code number is listed, try entering them one at a time until you find the one that works with your AV amplifier (receiver).

Manufacturer	Code number
Sony	78, 79, 80, 91
Denon	84, 85, 86
Kenwood	92, 93
Onkyo	81, 82, 83
Pioneer	99
Sansui	87
Technics	97, 98
Yamaha	94, 95, 96

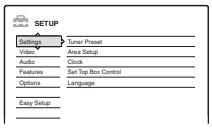
If you have a Sony DVD player or more than one Sony DVD recorder

If the supplied remote interferes with your other Sony DVD recorder or player, set the command mode number for this recorder and the supplied remote to one that differs from the other Sony DVD recorder or player.
The default command mode setting for this recorder and the supplied remote is DVD3.

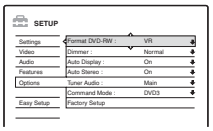


1 Press SYSTEM MENU.
The System Menu appears.

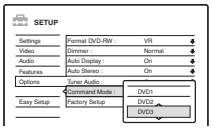
2 Select "SETUP," and press ENTER.



3 Select "Options," and press ENTER.



4 Select "Command Mode," and press ENTER.



5 Select the Command mode (DVD1, DVD2, or DVD3), and press ENTER.

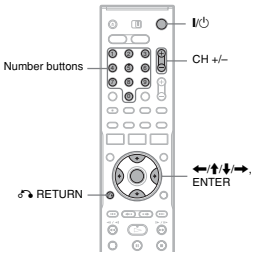
6 Slide the COMMAND MODE switch on the remote so it matches the mode you selected above.

To return to the previous step
Press ↩ RETURN.

Check that the command mode switch on the remote is set to the default setting of DVD3 before you try to change the command mode for the recorder. If the command mode for the remote is changed to DVD1 or DVD2, you may be unable to operate this recorder.

Step 7: Easy Setup

Make the basic adjustments by following the on-screen instructions in "Easy Setup."



1 Turn on the recorder and switch the input selector on your TV so that the signal from the recorder appears on your TV screen.
The message about the initial settings appears.
• If this message does not appear, select "Easy Setup" from "SETUP" in the System Menu to run "Easy Setup" function ("Settings and Adjustments" on page 88).

2 Press ENTER.
Follow the on-screen instructions to make the following settings.

◆ **Area Setup**
"Area Setup" will enable you to use the TV Guide On Screen system (page 42).
Enter your area of residence and zip code even if you do not want to use the TV Guide On Screen system.

◆ **Language**
Select the language for the on-screen displays.

◆ **Clock**
Set the clock manually using ←/↑/↓/→, and press ENTER.
If the clock data has already been received, go to "Set Top Box Control."

→continued

◆ **Set Top Box Control**
If you want to use the cable box/satellite receiver control (page 15), select "Yes," and set the brand code and the cable box output channel (page 90).
If you do not have a cable box/satellite receiver, select "No."

◆ **Tuner Preset**
"Tuner Preset" appears only when you set "Set Top Box Control" to "No."
Select whether or not you have a cable connection.
The Tuner Preset function automatically searches for all of the receivable channels and presets them.
To set the channels manually, see page 88.

◆ **TV Type**
If you have a wide-screen TV, select "16:9."
If you have a standard TV, select either "4:3 Letter Box" (shrink to fit) or "4:3 Pan Scan" (stretch to fit). This will determine how "wide-screen" images are displayed on your TV.

◆ **Audio Connection**
If you connected an AV amplifier (receiver) using either a digital optical or coaxial/HDMI cord, select "Yes: DIGITAL OUT" and set the digital output signal (page 94).

3 Press ENTER when "Finish" appears.
"Easy Setup" is finished.

To receive TV Guide On Screen data your recorder must be turned off when not in use. If your recorder is connected to a cable box, be sure to leave the cable box turned on. After initial setup, it may take up to 24 hours to begin to receive TV program listings. It may take up to one week to receive all eight days of TV program listings.

To return to the previous step
Press ↩ RETURN.

Hint
If you want to run "Easy Setup" again, select "Easy Setup" from "SETUP" in the System Menu (page 99).

Note
If you use an S-video cord to connect your cable box or satellite receiver, set "Line1 Input" or "Line3 Input" in "Video" setup to "S Video" (page 93).

Checking the cable box/satellite receiver control setting

1 Point the DVD recorder's remote at the recorder (not at the cable box/satellite receiver).

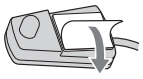
2 Press CH +/– and check that the channel changes on the cable box/satellite receiver window.

3 Press the number buttons and check that the channel changes on the cable box/satellite receiver window.
Tune your cable box to channel 02. Then using your DVD recorder's remote, enter 09 to tune your cable box to channel 09. Did the cable box change to channel 09? If the cable box did not tune to channel 09, follow the instructions below for getting your recorder to control your cable box.

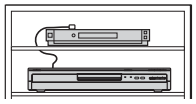
If you cannot get the recorder to control your cable box/satellite receiver
Check the settings at "Set Top Box Control" in "Settings" setup (page 90). If more than one code number is listed for your cable box/satellite receiver, try entering them one at a time until you find the one that works with your cable box/satellite receiver.
Check the connection and position of the set top box controller (page 15).
If your cable box or satellite receiver still does not operate with this recorder, contact your cable or satellite company to see if they can provide you with a compatible cable box or satellite receiver.

To fix the set top box controller to your cable box/satellite receiver
Once you have confirmed that the set top box controller controls your cable box or satellite receiver, fix it in place.

1 Remove the backing on the double-sided tape.



2 Attach it so that the set top box controller is directly above the remote control sensor on your cable box/satellite receiver.

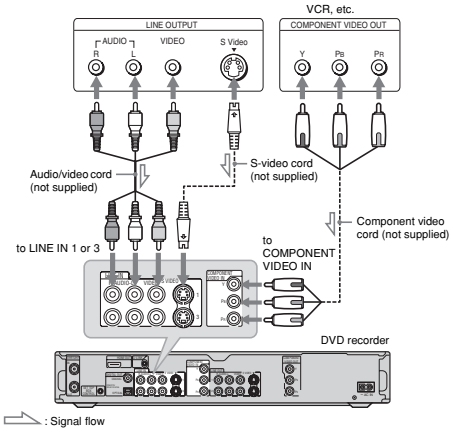


Connecting a VCR or Similar Device

After disconnecting the recorder's power cord from an AC outlet, connect a VCR or similar recording device to the LINE IN jacks of this recorder.
Use the DV IN jack on the front panel if the equipment has a DV output jack (i.LINK jack) (page 84).
See also the instruction manual supplied with the connected equipment.
To record on this recorder, see "Recording from connected equipment without a timer" on page 57.

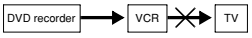
Connecting to the LINE IN 1 or 3 jacks

Connect a VCR or similar recording device to the LINE IN 1 or 3 of this recorder. If the equipment has an S-video jack, you can use an S-video cord instead of an audio/video cord.



Notes

- Pictures containing copy protection signals that prohibit any copying cannot be recorded.
- If you pass the recorder signals via the VCR, you may not receive a clear image on your TV screen.

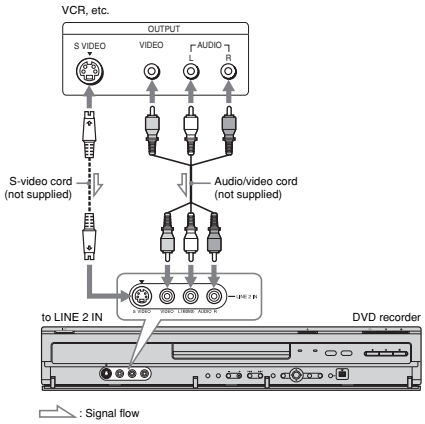


Be sure to connect your VCR to the DVD recorder and your TV in the order shown below. To watch video tapes, watch the tapes through a second line input on your TV.

- If you disconnect the recorder's power cord, you will not be able to view the signals from the connected VCR.

Connecting to the LINE 2 IN jacks on the front panel

Connect a VCR or similar recording device to the LINE 2 IN jacks of this recorder. If the equipment has an S-video jack, you can use an S-video cord instead of an audio/video cord.



Hint

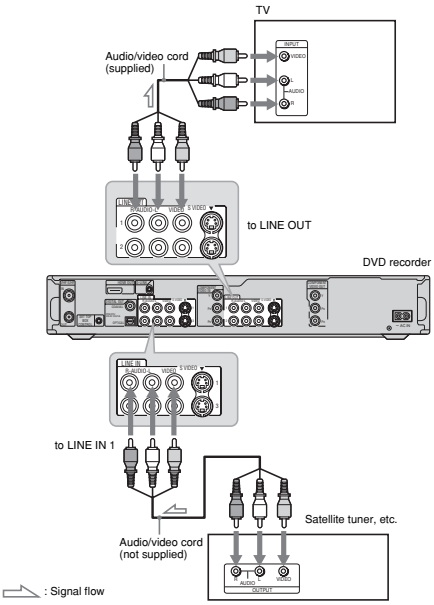
When the connected equipment outputs only monaural sound, connect to just the L (MONO) and VIDEO input jacks on the front of the recorder. Do not connect the R input jack.

Notes

- Do not connect the yellow LINE IN (VIDEO) jack when using an S-video cord.
- Do not connect the output jack of this recorder to another equipment's input jack with the other equipment's output jack connected to the input jack of this recorder. Noise (feedback) may result.
- Do not connect more than one type of video cord between the recorder and your TV at the same time.

Connecting to a Satellite or Digital Tuner

Connect a satellite or digital tuner to this recorder using the LINE IN 1 jacks. Disconnect the recorder's power cord from an AC outlet when connecting the tuner.
To use the Synchro-Rec function, see below.



If you want to use the Synchro Rec function

This connection is necessary to use the Synchro-Recording function. See "Recording from connected equipment with a timer (Synchro Rec)" on page 56.

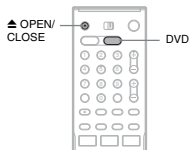
Notes

- Synchro-Recording does not work with some tuners. For details, see the tuner's operating instructions.
- If you disconnect the recorder's power cord, you will not be able to view the signals from the connected tuner.

1. Inserting and Formatting a DVD Disc (Disc Info)

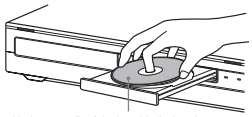
Inserting a Disc

+RW -RWVR -RWVideo +R -R DVD VCD CD DATA DVD DATA CD



1 Press DVD.

2 Press ⏏ OPEN/CLOSE, and place a disc on the disc tray.



With the recording/playing side facing down

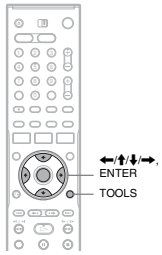
3 Press ⏏ OPEN/CLOSE to close the disc tray.

Wait until "LOAD" disappears from the front panel display.
Unused DVDs are formatted automatically.

Formatting a DVD disc (Disc Info)

+RW -RWVR -RWVideo

New discs are automatically formatted when inserted. If necessary, you can manually re-format a DVD+RW or DVD-RW disc to make a blank disc. For DVD-RWs, you can select a recording format (VR mode or Video mode) according to your needs (page 10).

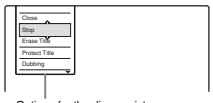


1 Insert a disc.

See "Inserting a Disc" on page 31.

2 Press TOOLS.

The TOOLS menu appears.



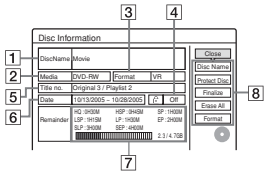
Options for the disc or picture

The TOOLS menu displays options applicable to the entire disc (e.g. disc protection), recorder (e.g. audio settings during recording), or multiple items on a list menu (e.g. erasing multiple titles). The displayed options differ depending on the situation and disc type.

➡continued

3 Move the cursor down the TOOLS menu until “Disc Info” is selected, and press ENTER.

Example: When a DVD-RW (VR mode) is inserted.



1 “Disc Name” (DVD only)
2 “Media”: Disc type
3 “Format”: Recording format type (DVD-RW only)
4 “On”/“Off”: Indicates whether protection is set (DVD-RW in VR mode only)
5 “Title no.”: Total number of titles
6 “Date”: Dates of when the oldest and the most recent titles were recorded (DVD only)
7 “Continuous Rem. Time”/“Remainder” (approximate)
- The remaining recording time in each of the recording modes
- Disc space bar
- Remaining disc space/total disc space

8 Disc setting buttons
“Disc Name” (page 39)
“Protect Disc” (page 40)
“Finalize”/“Unfinalize” (page 40)
“Erase All” (page 76)
“Format”

Available settings differ depending on the disc type.

4 Select “Format,” and press ENTER.

5 Select “OK,” and press ENTER.

For DVD-RWs, select “VR” or “Video,” and press ENTER.
All contents on the disc are erased.

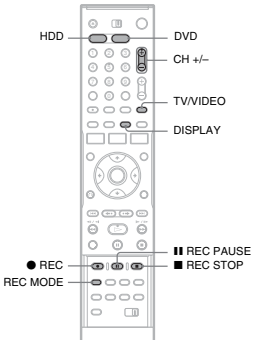
Hints
- By reformatting, you can change the recording format on DVD-RWs, or record again on DVD-RWs that have been finalized.
- For DVD+RWs and DVD-RWs (Video mode), you can check free space and title location on the disc using the Disc Map display (page 76).

Note
On this model, 1 GB (read “gigabyte”) is equivalent to 1 billion bytes. The larger the number, the larger the disc space.

2. Recording a Program

HDD +RW -RWVR -RWVideo +R -R

This section introduces the basic operation to record the current TV program to the hard disk (HDD) or to a disc (DVD). For an explanation of how to make timer recordings, see page 49.



1 Press HDD or DVD.

When you record to a DVD, insert a recordable DVD (see “Inserting a Disc” on page 31).

2 Press CH +/– to select the channel or input source you want to record.

3 Press REC MODE repeatedly to select the recording mode.

Each time you press the button, the display on the TV screen changes as follows:

HQ → HSP → SP → LSP → SEP ← SLP ← EP ← LP ←

For more details about the recording mode, see page 49.

4 Press ● REC.

Recording starts.
Recording stops automatically after 8 hours of continuous recording or when the HDD or DVD is full.

To stop recording
Press ■ REC STOP located beneath the remote control cover.
Note that it may take a few seconds for recorder to stop recording.

To pause recording
Press ❚❚ REC PAUSE located beneath the remote control cover.
To restart recording, press the button again.

To watch another TV program while recording
Set your TV to the TV input using the TV/VIDEO button (page 22).

Hint
If you do not want to watch TV while recording, you can turn off the TV. When using a decoder, make sure to leave it on.

Notes
- After pressing ● REC, it may take a short while to start recording.
- You cannot change the recording mode while recording or during recording pause.
- If there is a power failure, the program you are recording may be erased.

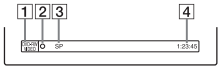
➡continued

Checking the disc status while recording

You can check the recording information such as recording time or disc type.

Press DISPLAY twice during recording.

The recording information appears.



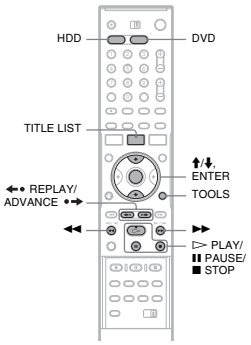
1 Disc type/format
2 Recording status
3 Recording mode
4 Recording time

Press DISPLAY to turn off the display.

3. Playing the Recorded Program (Title List)

HDD +RW -RWVR -RWVideo +R -R

To play a recorded title, select the title from the Title List.



1 Press HDD or DVD.

If you select DVD, insert a DVD (see “Inserting a Disc” on page 31).
Playback starts automatically depending on the disc.

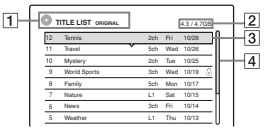
2 Press TITLE LIST.

To show the extended Title List, press TOOLS to select “Display List,” and press ENTER.

Title List with Thumbnail Images (Example: DVD-RW in VR mode)

TITLE LIST ORIGINAL
4.3 / 4.7GB
12 Tennis 2ch Fri 10/28/2005 1:00PM (0H30M) LSP 0.9GB
11 Travel 5ch Wed 10/26/2005 8:00PM (1H00M) SEP 0.3GB
10 Mystery 2ch Tue 10/25/2005 9:00AM (1H00M) SLP 0.8GB
9 World Sports 3ch Wed 10/19/2005 8:00PM (1H00M) SEP 0.6GB

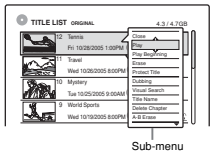
Extended Title List


TITLE LIST ORIGINAL
4.3 / 4.7GB
12 Tennis 2ch Fri 10/28
11 Travel 5ch Wed 10/26
10 Mystery 2ch Tue 10/25
9 World Sports 3ch Wed 10/19
8 Family 5ch Mon 10/17
7 Nature L1 Sat 10/15
6 News 3ch Fri 10/14
5 Weather L1 Thu 10/13

1 Disc type:
Displays a media type, HDD or DVD. Also displays the title type (Original or Playlist) for DVD-RWs (VR mode).
2 Disc space (remainder/total)
3 Title information:
Displays the title number, title name, and recording date. Title size is shown in the Thumbnail title list.
● (red): Indicates that the title is currently being recorded.
: Indicates that the title is currently being dubbed.
: Indicates the protected title.
“NEW” (or N): Indicates that the title is newly recorded (not played back) (HDD only).
COPY : Indicates titles containing “Copy-Once” copy protection signals (HDD only) (page 80).
4 Scroll bar:
Appears when all of the titles do not fit on the list. To view the hidden titles, press ↑/↓.
5 Title’s thumbnail picture
The still images for each title are displayed.

3 Select a title, and press ENTER.

The sub-menu appears.
The sub-menu displays options applicable only to selected item. The displayed options differ depending on the model, situation, and disc type.



4 Select “Play,” and press ENTER.

Playback starts from the selected title.

To stop playback
Press ■ STOP.

To scroll the list display by page (Page mode)
Press ◄◄ REPLAY/ADVANCE ►► while the list display is turned on. Each time you press ◄◄ REPLAY/ADVANCE ►►, the entire Title List changes to the previous/next page of titles.

About the Title List for HDD/DVD-RWs (VR mode)
You can switch the Title List to show Original or Playlist.
While the Title List menu is turned on, press TOOLS to select either “Original” or “Playlist,” and press ENTER.
For details, see “Edit options for the HDD and DVD-RWs (VR mode)” on page 72.

To change the title order (Sort)
While the Title List menu is turned on, press TOOLS to select “Sort Titles.” Press ↑/↓ to select the item, and press ENTER.

Order	Sorted
By Date	in order of when the titles were recorded. The title that is recorded most recently is listed at the top.
By Title	in alphabetical order.
By Number	in order of recorded title number.

➡continued

Order	Sorted
Unseen Title (HDD only)	in order of when the titles were recorded. The title that is recorded most recently and not played back is listed at the top. Playlist titles are not displayed.

To change a title thumbnail picture (Thumbnail) (HDD/DVD-RW in VR mode only)

You can select a favourite scene for the thumbnail picture shown in the Title List menu.

1. Press TITLE LIST in stop mode.
2. Select a title whose thumbnail picture you want to change, and press ENTER.
   The sub-menu appears.
3. Select “Set Thumbnail,” and press ENTER.
   The selected title starts to play in the background.
4. While watching the playback picture, press ▷ PLAY, ❚❚ PAUSE, or ◀◀/▶▶ to select the scene you want to set for a thumbnail picture, and press ENTER.
   The display asks for confirmation.
5. Select “OK,” and press ENTER.
   The scene is set for the title’s thumbnail picture.

To turn off the Title List

Press TITLE LIST.

Hints

- After recording, the first scene of the recording (the title) is automatically set as the thumbnail picture.
- You can select “TITLE LIST” from the System Menu.

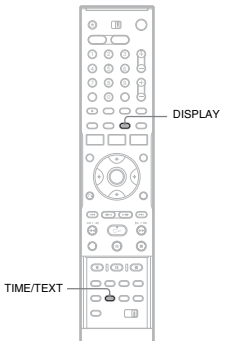
Notes

- The title names may not appear for DVDs created on other DVD recorders.
- The letters that cannot be displayed are replaced with “*.”
- It may take a few seconds for the thumbnail pictures to be displayed.
- After editing, the title thumbnail picture may change to the first scene of the recording (title).
- After dubbing, the title thumbnail picture set on the source recording is canceled.

4. Displaying the Playing Time and Play Information

HDD +RW -RWVR -RWVideo +R -R DVD VCD CD DATA DVD DATA CD

You can check the playing time and remaining time of the current title, chapter, or track. Also, you can check the disc name recorded on the DVD/CD.



Press DISPLAY repeatedly.

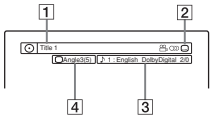
Each time you press the button, the display changes as follows:

Display 1 → Display 2 → Display off

The displays differ depending on the disc type or playing status.

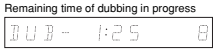
◆Display 1

Example: When playing a DVD VIDEO



Example: When dubbing a DVD

Remaining time of dubbing in progress



Example: When playing a VIDEO CD

Playing time and number of the current scene or track

Example: When playing a CD

Track playing time and the current track/index number
↓
Remaining time of the current track
↓
Playing time of the disc
↓
Remaining time of the disc
↓
CD text (when available)

Example: When playing an MP3 audio track

Playing time and number of the current track
↓
Current album number

Example: When viewing a JPEG image

Current file number and total number of files in the current album
↓
Current album number and total number of albums

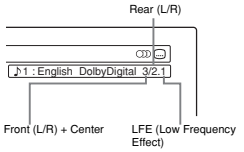
Notes

- The recorder can only display the first level of a CD’s text, such as the disc name.
- The letters or symbols that cannot be displayed are replaced with “*.”
- Playing time of MP3 audio tracks may not be displayed correctly.

1 Title number/name
(Shows either track number, track name, scene number, or file name for CDs, VIDEO CDs, DATA DVDs, or DATA CDs.)

2 Available functions for DVD VIDEOs (angle/ audio/ subtitle, etc.), or playback data for DATA DVDs and DATA CDs

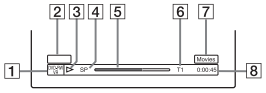
3 The current selected function or audio setting (appears only temporarily)
Example: Dolby Digital 5.1 ch



4 The current selected angle

◆Display 2

Example: When playing a DVD-RW (VR mode)



1 Disc type*1/format (page 10)

2 Title type (only appears for Playlists) (page 72)

3 Play mode

4 Recording mode (page 49)

5 Playing status bar*2

6 Title number (chapter number*3) (page 67)
(Shows either track number, scene number, album number*3, or file number for CDs, VIDEO CDs, DATA DVDs, or DATA CDs.)

7 Album name appears for CDs with CD text, DATA DVDs or DATA CDs when you press TIME/TEXT repeatedly.

8 Playing time (remaining time*3)

*1 Displays Super VIDEO CDs as “SVCD,” DATA CDs as “CD” and DATA DVDs as “DVD.”
*2 Does not appear with VIDEO CDs, DATA DVDs, and DATA CDs.
*3 Displayed when you press TIME/TEXT repeatedly.

Hints

- If “DTS” is set to “Off” in “Audio” setup, the DTS track selection option will not appear on the screen even if the disc contains DTS tracks (page 95).
- When “Auto Display” is set to “On” (default) in “Options” setup (page 98), playback information automatically appears when the recorder is turned on, etc.

Note

The letters or symbols that cannot be displayed are replaced with “*.”

Checking the playing/remaining time

You can view the playing or time information displayed on the TV screen and the front panel display.

Press TIME/TEXT repeatedly.

The displays differ depending on the disc type or playing status.

◆Front panel display

Example: When playing a DVD

Playing time and number of the current title

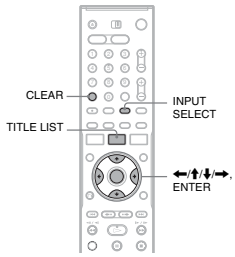
↓ Remaining time of the current title

↓ Playing time and number of the current chapter

↓ Remaining time of the current chapter

5. Changing the Name of a Recorded Program

You can label a DVD, title, or program by entering characters. You can enter up to 64 characters for a title or disc name, but the actual number of characters displayed in the menus such as the Title List will vary. The steps below explain how to change the name of the recorded program.



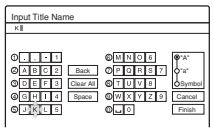
1 Press TITLE LIST.

2 Select a title, and press ENTER.
The sub-menu appears.

3 Select “Title Name,” and press ENTER.
The display for entering characters appears.

4 Press ←/↑/↓/→ to move the cursor to the right of the screen and select “A” (upper-case), “a” (lower-case), or “Symbol,” and press ENTER.
The characters of the selected type are displayed.

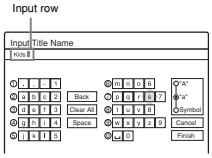
5 Press ←/↑/↓/→ to select the character you want to enter, and press ENTER.
The selected character appears at the top of the display.
Example: Input Title Name



The type of characters will change according to the language you select in “Easy Setup.” Some languages allow you to enter an accent mark.
To enter a letter with an accent mark, select an accent followed by the letter.
Example: Select “ ` ” and then “a” to enter “à.”
To insert a space, select “Space.”

6 Repeat steps 4 and 5 to enter the remaining characters.

Input row



To erase a character, move the cursor to the right of the character at the input row. Select “Back” and press ENTER.
To insert a character, move the cursor to the right of the point where you want to insert the character. Select the character and press ENTER.
To erase all of the characters, select “Clear All” and press ENTER.

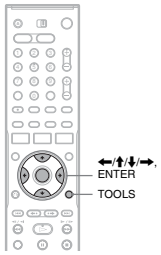
7 Select “Finish,” and press ENTER.
To cancel the setting, select “Cancel.”

Hints

- You can erase all displayed characters by pressing and holding CLEAR for 2 seconds or more.
- You can switch between “A” (upper-case), “a” (lower-case), or “Symbol” even if you press INPUT SELECT.

6. Labeling and Protecting a Disc

You can execute options effective for the entire disc using the Disc Information display.

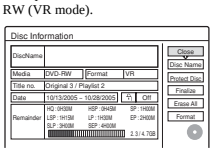


Labeling a disc

+RW -RWVR -RWVideo +R -R

1 Insert a disc.
See “Inserting a Disc” on page 31.

2 Press TOOLS to select “Disc Info,” and press ENTER.
Example: When the inserted disc is a DVD-RW (VR mode).



3 Select “Disc Name,” and press ENTER.
Enter the disc name in the “Input Disc Name” display (page 38).

Note

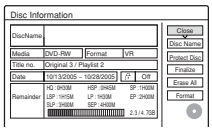
You can enter up to 64 characters for a DVD’s disc name. The disc name may not appear when the disc is played on other DVD equipment.

Protecting a disc

-RWVR

1 Insert a disc.
See "Inserting a Disc" on page 31.

2 Press TOOLS to select "Disc Info," and press ENTER.



3 Select "Protect Disc," and press ENTER.

4 Select "Protect," and press ENTER.

To cancel the protection
Select "Don't Protect" in step 4.

Hint
You can set protection for individual titles (page 73).

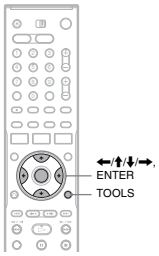
7. Playing the Disc on Other DVD Equipment (Finalize)

+RW -RWVR -RWVideo +R -R

Finalizing is necessary when you play discs recorded with this recorder on other DVD equipment.
When you finalize a DVD+RW, DVD-RW (Video mode), DVD+R, or DVD-R, a DVD menu will be automatically created, which can be displayed on other DVD equipment.
Before finalizing, check the differences between the disc types in the table below.

Differences between the disc types

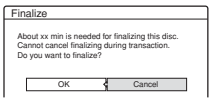
+RW	Discs are automatically finalized when removed from the recorder. However, you may need to finalize the disc for certain DVD equipment, or if the recording time is short. You can edit or record on the disc even after finalizing.
-RWVR	Finalizing is unnecessary when playing a disc on VR format compatible equipment. Even if your other DVD equipment is VR format compatible, you may need to finalize the disc, especially if the recording time is short. You can edit or record on the disc even after finalizing.
-RWVideo	Finalizing is necessary when playing on any equipment other than this recorder. After finalizing, you cannot edit or record on the disc. If you want to record on it again, unfinalize or reformat the disc (page 31). However, if you reformat the disc, all recorded contents will be erased.
+R -R	Finalizing is necessary when playing on any equipment other than this recorder. After finalizing, you cannot edit or record on the disc.



1 Insert a disc.
See "Inserting a Disc" on page 31.

2 Press TOOLS to select "Disc Info," and press ENTER.
The "Disc Information" display appears.

3 Select "Finalize," and press ENTER.
The display shows the approximate time required for finalizing and asks for confirmation.



4 Select "OK," and press ENTER.
The recorder starts finalizing the disc.

Hint
You can check whether the disc has been finalized or not. If you cannot select "Finalize" in step 3 above, the disc has already been finalized.

Notes
- Depending on the condition of the disc, recording, or the DVD equipment, discs may not play even if the discs are finalized.
- The recorder may not be able to finalize the disc if it was recorded on another recorder.

Unfinalizing a disc

-RWVR -RWVideo

For DVD-RWs (Video mode)
DVD-RW (Video mode) that have been finalized to prohibit additional recording or editing can be unfinalized to allow further recording or editing.

For DVD-RWs (VR mode)
If you cannot record or edit on a DVD-RW (VR mode) that has been finalized with other DVD equipment, "This disc was finalized. Unfinalize it." may appear.

Note
The recorder is not able to unfinalize DVD-RWs (Video mode) that have been finalized on another recorder.

1 Insert a disc.
See "Inserting a Disc" on page 31.

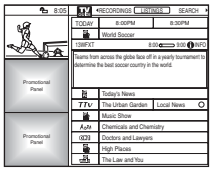
2 Press TOOLS to select "Disc Info," and press ENTER.
The "Disc Information" display appears.

3 Select "Unfinalize," and press ENTER.
The recorder starts unfinalizing the disc. Unfinalizing may take several minutes.

TV GUIDE

Introduction to the TV Guide On Screen System

The TV Guide On Screen system is a free interactive program guide. It displays up to eight days of program listings, including program titles, promotions, and broadcast information. TV Guide On Screen data for the television program listings is carried by local broadcast stations and is received through your antenna, cable box, or direct cable connection from the wall.



These are just a few of the ways to use the TV Guide On Screen system.
– Search for a program by listing them in alphabetical order or according to category (such as Movies or Sports), or by using the Keyword Search function (page 46).
– Once you have found the program you are looking for, use the TV Guide On Screen system to set the timer for recording (page 50).
– If you find a program that you want to watch in the future, set the Remind function so that the recorder automatically lets you know when the broadcast begins.

For more information, see "Watching TV with the TV Guide On Screen System" (page 43).

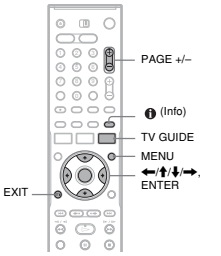
Troubleshooting guide

If you are having trouble displaying the television program list, please check the following.
– This recorder downloads the TV Guide On Screen data several times a day when the recorder is turned off. Turn off the recorder when you are not using it (for example, at night). After initial setup (page 25), it may take up to 24 hours for your recorder to start receiving program listings. It may take up to one week to receive all eight days of TV program listings.
– When the recorder is connected to a cable box, the cable box must be turned on, the set top box controller must be connected, and "Set Top Box Control" in the "Settings" setup must be set to "On" (page 90) to download the TV Guide On Screen data.
– Your area of residence and zip code must be set correctly (page 89).
– The time must be set correctly. If the time is not set, set it manually (page 89).
– The television program list is blank when TV Guide On Screen data is being downloaded or a satellite or terrestrial digital tuner is in use.

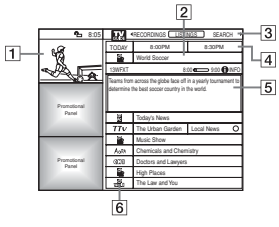
You may be asked to select a channel lineup the first time you press TV GUIDE. Select one of the available channel lineups. If the channel number in the program listing does not match the broadcast station, see "To match the channel number with the broadcast station" (page 47).

Notes
- The TV Guide On Screen system is always displayed in English.
- The TV Guide On Screen system is not compatible with satellite and terrestrial digital broadcasts.
- Your cable box's channel may suddenly change even if the recorder is turned off. This is because the set top box control has changed the channel to receive the TV Guide On Screen data.
- When you change the following settings, the TV Guide On Screen system is initialized and all timer settings are canceled.
  – "Antenna/Cable" of "Tuner Preset" in the "Settings" setup
  – "Zip Code" of "Area Setup" in the "Settings" setup
  – "Set Top Box Control" of "Set Top Box Control" in the "Settings" setup

Watching TV with the TV Guide On Screen System



1 Press TV GUIDE.
TV Guide On Screen appears.
Example: LISTINGS



1 Video Window: This shows the program you were watching when you pressed TV GUIDE. See "To lock the Video Window" (page 47) to prevent the picture from changing when you move the cursor.

2 Title: Shows the program title and category; green (sports), purple (movies), blue (children's), teal (others).
The following icons are displayed.
"○" indicates that the program is set to be recorded.
"" indicates that the Remind function is set for the program.

3 Service Bar: Press ↑/↓ to move the cursor to the Service Bar. Then, select one of the following features using ←/→, and press ENTER.
"LISTINGS": Shows the programs for the current time slot and next 7 days.
"SEARCH": Allows you to search for titles alphabetically, by category, or by keyword (page 46). The displayed category depends upon the program data received by this recorder. Movies, Sports, Children and News are examples of possible categories.
"SETUP": Allows you to change the channel lineup, channel display and default options.
"SCHEDULE": Displays the list of record or remind timer settings (page 55).
"RECORDINGS": Displays the list of recorded titles (page 59).

4 Time Slot: Indicates the currently selected time slot. Use ←/→ to select a different time slot.

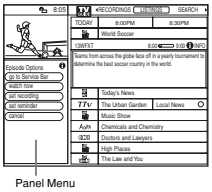
5 Info Box: Shows information about the selected program.
The following icons are displayed.
"∩" indicates that the program is in stereo.
"" indicates that the program is not a re-run.
"CC" indicates that the program is closed captioned.
Press the ❶ (info) button repeatedly to show extended information about the program, if available.

6 Channel Logo: Shows the broadcast station logo.

→continued

2 Select a program using ↑/↓, and press MENU.

The Panel Menu appears.



Panel Menu

The Panel Menu contains all functions that are available for the current selection. The available selections will change according to the selected item. You can tune to a channel, set a recording or edit the recording list from the Panel Menu when "LISTINGS" is selected.

3 Select "watch now" from the Panel Menu using ↑/↓, and press ENTER.

The TV Guide On Screen system disappears and the channel changes to the selected program.

To set a program for timer recording

See "Recording with the TV Guide On Screen system (TV GUIDE)" (page 50).

To close the TV Guide On Screen system

Press TV GUIDE or EXIT.

Hints

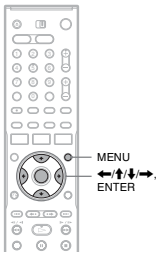
- Press the PAGE +/– buttons to change the program list by page.
- Each time you turn on the power, the TV Guide On Screen system automatically appears on your TV screen. To turn off this function, select "SETUP" in the Service Bar, and select "Change default options" – "General defaults," and then press ENTER. When the Panel Menu appears, select "auto guide" and set it to "off."

Notes

- The Video Window is locked during recording and the lock indicator appears in the Video Window. You cannot unlock the Video Window during recording.
- If you are watching programs through a set top box, the Video Window may not change as fast as you move the cursor. In this case, lock the Video Window (page 47).
- When you turn on the recorder, the same channel that you were watching last will automatically appear, even if you should change the channel on your set top box while the recorder's power is off.
- The screen saver will not appear with the TV Guide On Screen system. The TV Guide On Screen system will close if no buttons are pressed for more than five minutes.

Setting the "Remind" Timer

If you want the recorder to remind you in the future when a selected program begins broadcasting, set the Remind timer.



1 Search for a program alphabetically, by category or by keyword.

2 If you performed a category search go to step 3. If you performed an alphabetical or keyword search, select the program title using ↑/↓, and press ENTER.

A list of episodes appears.

3 Select an episode using ↑/↓, and press ENTER.

The Panel Menu appears.

4 Select "set reminder" using ↑/↓, and press ENTER.

5 Select one of the following options using ↑/↓, and adjust the settings using ←/→.

- "schedule reminder": Press ENTER to set the Remind timer with the displayed settings.
- "frequency": Sets the timer to turn on the recorder "once," "regularly" or "weekly." Select "off" to turn off the timer.
- "auto tune": Changes the channel automatically when the Remind timer is activated.
- "when": Sets the time at which the recorder will remind you that a program is scheduled to start.

To change or cancel a reminder setting

See "Changing/Canceling Timer Recording or Reminder Settings" on page 55.

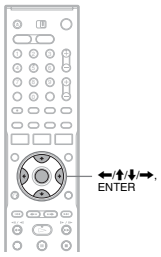
To set the timer for recording

1 Select the program you want to record, and press MENU.

2 Select "set recording" from the Panel Menu, and press ENTER.

3 Select "schedule recording" to set the timer with the displayed settings.
For more informations, see page 50.

Searching for a Program with the TV Guide On Screen System



1 Select "SEARCH" in the Service Bar, and press ENTER.

2 Select a search option using ←/→, and press ENTER.

To sort alphabetically, select "ALPHABETICAL."
If you select "KEYWORD" prior to entering any keywords you will be prompted to enter a new keyword search. See "To enter a new keyword" below.

3 Select the letter (if you are sorting alphabetically), sub-category, or keyword using ←/↑/↓/→, and press ENTER.

If no keywords are displayed, enter the keyword. See "To enter a new keyword" below.

4 Select a program using ↑/↓, and press ENTER.

To enter a new keyword

1 Select "SEARCH" in the Service Bar, and press ENTER.

2 Select "KEYWORD" using ←/→, and press ENTER.
The Panel Menu appears.

3 Select "new search" from the Panel Menu, and press ENTER.

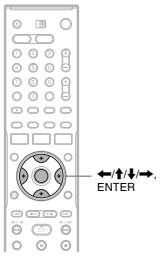
4 Select "enter keyword" from the Panel Menu, and press ENTER.

5 Select a letter on the keyboard using ←/↑/↓/→, and press ENTER.

6 Repeat step 5 to enter the keyword.

7 Select "DONE," and press ENTER.
The recorder searches for all programs (including previous recordings) that contain the keyword in the program's title.

Customizing the TV Guide On Screen System



To lock the Video Window

You can lock the Video Window so that it does not change channels when you move the cursor across other titles.
From LISTINGS, select the logo of the channel that you want to lock, and press MENU. Select "video" from the Panel Menu, and lock or unlock the Video Window using ←/→.

To customize the channel lineup

1 Select "SETUP" in the Service Bar, and press ENTER.

2 Select "Change channel display" using ↑/↓, and press ENTER.

3 Select a channel using ↑/↓, and press ENTER.
The Panel Menu appears.

◆ **To change the channel number**
Select "tune channel" and enter the new channel number using the number buttons, then press ENTER.
The cursor moves to "done."
Press ENTER again to exit the Panel Menu.

◆ **To change the order of the channels**
Select "position" and enter the number of the new location for the channel, then press ENTER.
The cursor moves to "done."
Press ENTER again to exit the Panel Menu.

◆ **To hide or show channels**
Select "channel" and select "on," "off" or "auto-hide" using ←/→, then press ENTER.
"off": will hide the channel.
"auto-hide": will show the channel only when program information is available.
The cursor moves to "done."
Press ENTER again to exit the Panel Menu.

To match the channel number with the broadcast station

If the channel number in the program listing does not match the broadcast station, there may be more than one channel lineup for your area. To change the channel lineup, select "Change channel lineup" from "SETUP" and press ENTER. Then select a different channel lineup, if available.

To change the default settings

1 Select "SETUP" in the Service Bar.

2 Select "Change default options" using ↑/↓, and press ENTER.

3 Select "General defaults," "Record defaults" or "Remind defaults," and press ENTER.
The Panel Menu for the selected option appears.

◆ **General defaults**
- "ⓘ box size": changes the size of the info box.
- "box cycle": changes the order in which the info box size is displayed each time the ⓘ (info) button is pressed. For example, "small only" will display only a small info box each time the ⓘ (info) button is pressed.
- "auto guide": automatically displays the TV Guide On Screen system each time the power is turned on.

◆ **Record defaults**
- "start": changes the start time of the recording to before or after the broadcast time of the program set to start.
- "end": changes the end time of the recording to before or after the broadcast time of the program is scheduled to end.
- "recorder": sets the default recording destination to either HDD or DVD.
- "quality": adjusts the recording mode (page 49).

→continued

◆ **Remind defaults**
- "auto tune": sets the recorder to change channels automatically when the Remind timer is activated.
- "when": sets the recorder to display a notification message at a designated time before or after the selected program is scheduled to start.

4 Select one of the available options from the Panel Menu.

5 Adjust the default setting using ←/→, and press ENTER.
The cursor moves to "done."
Press ENTER again to exit the Panel Menu.

Before Recording

Before you start recording…
- This recorder can record on various discs. Select the disc type according to your needs (page 10).
- Check that the disc has enough available space for the recording (page 31). For HDD, DVD+RWs, and DVD-RWs, you can free up disc space by erasing titles (page 76).
- Adjust the recording picture quality and picture size if necessary (page 53).

Hint
Timer recordings will be made regardless whether or not the recorder is turned on. You can turn off the recorder without affecting the recording even after recording starts.

Note
To play a recorded disc on other DVD equipment, finalize the disc (page 40).

Recording mode

Like the SP or LP recording mode of VCRs, this recorder has eight different recording modes. Select a recording mode according to the time and picture quality you need. For example, if picture quality is your top priority, select the High Quality mode (HQ). If recording time is your priority, Super Extended Play mode (SEP) can be a possible choice. Note that recording times in the following table are approximate and the actual times may differ. Note also that the maximum continuous recording time for a single title is eight hours. Contents beyond this time will not be recorded.

Press REC MODE repeatedly to switch the recording modes.

Recording mode	Recording time (hours)	
	HDD	DVD*
HQ (High quality)	33	1
HSP ↑	51	1 hr. 30 min.
SP (Standard mode)	67	2
LSP ↓	85	2 hr. 30 min.
LP ↓	103	3
EP ↓	137	4
SLP ↓	204	6
SEP (Long duration)	269	8

* The recording time for DVD+R DL (Double Layer) discs is as follows:
HQ: 1 hour 48 minutes
HSP: 2 hours 42 minutes
SP: 3 hours 37 minutes
LSP: 4 hours 31 minutes
LP: 5 hours 25 minutes
EP: 7 hours 14 minutes
SLP: 10 hours 51 minutes
SEP: 14 hours 28 minutes

"HQ+" recording mode
"HQ+" records pictures in higher quality than HQ on the HDD. Set "HQ Setting" in "Features" setup to "HQ+" (page 97). Maximum recording time is 21 hours. "HQ" appears in the display.

Note
Situations below may cause slight inaccuracies with the recording time.
– Recording a program with poor reception, or a program or video source of low picture quality
– Recording on a disc that has already been edited
– Recording only a still picture or just sound

→continued

Recording a stereo/SAP program

The recorder can receive and record stereo/SAP programs.

Stereo programs
If there is noise in the stereo program, set "Auto Stereo" in "Options" setup to "Off" (page 98). The sound will be recorded in monaural but with less noise.

SAP (Second Audio Program)
When a SAP (Second Audio Program) is received, the "SAP" indicator lights up on the front panel display. To record only SAP sound, set "Tuner Audio" in "Options" setup to "SAP" (page 98).

Unrecordable pictures

Pictures with copy protection cannot be recorded on this recorder.
When the recorder receives a copy guard signal, the recorder continues to record but only a blank, grey colored screen will be recorded.

Copy control signals	Recordable discs
Copy-Free	HDD +RW -RWVR -RWVideo +R -R
Copy-Once	HDD -RWVR (CPRM*)
Copy-Never	None (a blank screen is recorded)

* The recorded disc can be played only on CPRM compatible equipment (page 10).

Timer Recording (TV GUIDE/ Manual)

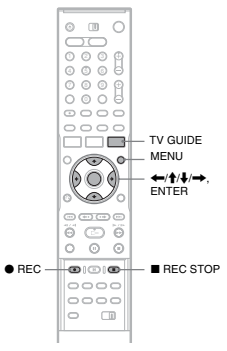
HDD +RW -RWVR -RWVideo +R -R

There are two methods to set the timer – setting the timer using the TV Guide On Screen system and setting the timer manually.

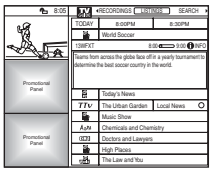
Notes
- When the recorder is connected to a cable box and you want to record using the TV Guide On Screen system, do the following: Turn on the cable box, connect the set top box controller, and set "Set Top Box Control" in the "Settings" setup to "On."
- Do not operate your cable box or satellite receiver just before or during a timer recording. This may prevent the accurate recording of a program.

Recording with the TV Guide On Screen system (TV GUIDE)

You can use the TV Guide On Screen system to set the timer to record a program up to eight days in advance.

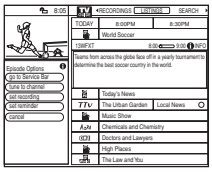


1 Press TV GUIDE.



2 Select a program using ←/↑/↓/→.
To search for a program alphabetically, by category or by keyword, select "SEARCH" in the Service Bar. See "Searching for a Program with the TV Guide On Screen System" on page 46 for more information about searching for a program.

3 Press MENU.
The "Episode Options" menu appears.



4 Select "set recording" using ↑/↓, and press ENTER.
The "Record Options" menu appears with the default settings.
- "schedule recording": press ENTER to set the recording timer with the displayed options.
- "frequency": sets the timer to record "once," "regularly" or "weekly." Select "off" to turn off the timer.
- "start": sets the timer to begin recording before or after the program is scheduled to start.
- "end": sets the timer to stop recording before or after the program is scheduled to end.
- "recorder": sets the recording destination to either HDD or DVD.
- "quality": sets the recording mode (page 49).

5 Select an option using ↑/↓, and make an adjustment using ←/→.

6 Select "schedule recording," and press ENTER.
The ○ mark appears next to the program title, the TIMER REC indicator lights up in the front panel display and the recorder is ready to start recording. When recording from a cable box, be sure to turn it on.
Unlike a VCR, there is no need to turn off the recorder before the timer recording starts.
If there is a recording conflict, follow the instructions on your TV screen to resolve the conflict.

To change or cancel timer recording
See "Changing/Canceling Timer Recording or Reminder Settings" on page 55.

To stop recording during timer recording
Open the remote's cover and press ■ REC STOP. Note that it may take a few seconds for the recorder to stop recording, and that the recording cannot be stopped within the first minute of recording.

To adjust the recording quality
See step 3 of "Adjusting the recording picture quality and size" on page 53.

Rec Mode Adjust
If there is not enough available disc space for the recording, the recorder automatically adjusts the recording mode to enable the entire program to be recorded. Set "Rec Mode Adjust" in "Features" setup to "On" (page 97).

Auto Title Erase (HDD only)
If there is not enough space for a timer recording, the recorder automatically erases old titles recorded on the HDD.
Set "Auto Title Erase" in "Features" setup to "On" (page 97). The oldest, played title is erased. The protected titles are not erased.

→continued

If the timer settings overlap

If one or more timer settings overlap, ♪ appears next to the program and the recording is suspended. The timer recording resumes its original status when the overlap condition no longer exists. To change the timer settings, see "Changing/Canceling Timer Recording or Reminder Settings" on page 55.

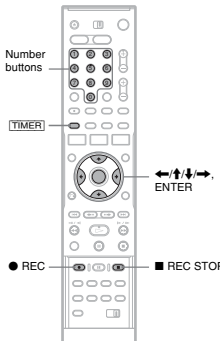
Hint

You can also set a program to record by pressing ● REC under the remote's cover while the program is selected. Press ● REC repeatedly to scroll between "record once," "record regularly," "record weekly" and "record off."

Notes

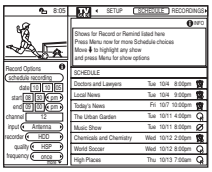
- Check to see that there is enough available space for the recording (HDD/DVD+RW/DVD-RW only) (page 75).
- The Rec Mode Adjust function only works with a timer recording. It does not function with Quick Timer (page 53).
- You cannot adjust the recording quality (HDD or DVD) once the recording starts.
- If you change the recording destination of a program that is currently being recorded, the recording stops and the recording destination is changed.

Setting the timer manually



1 Press TIMER.

The cursor moves to the Panel Menu.



2 Select an option using ↑/↓.

"schedule recording": Press ENTER to set the recording timer with the displayed options.
"date": Press the number buttons to enter the date.
"start": Press the number buttons to enter the start time. To change am/pm, select "am" or "pm" using ←/→.
"end": Press the number buttons to enter the end time. To change am/pm, select "am" or "pm" using ←/→.
"channel": Press the number buttons to enter the channel number.
"input": Select the connected input source such as "Line1" or "Line2."
"recorder": Sets the recording destination to either HDD or DVD.
"quality": Sets the recording mode (page 49).
"frequency": Sets the timer to record "once," "daily" or "weekly." Select "off" to turn off the timer.

3 Select "schedule recording," and press ENTER.

The TIMER REC indicator lights up in the front panel display and the recorder is ready to start recording. When recording from a cable box, be sure to turn it on.
Unlike a VCR, there is no need to turn off the recorder before the timer recording starts.

To confirm, change, or cancel timer recording

See "Changing/Canceling Timer Recording or Reminder Settings" on page 55.

To stop recording during timer recording

Open the remote's cover and press ■ REC STOP. Note that it may take a few seconds for the recorder to stop recording.

Rec Mode Adjust

If there is not enough available disc space for the recording, the recorder automatically adjusts the recording mode to enable the entire program to be recorded. Set "Rec Mode Adjust" in "Features" setup to "On" (page 97).

Auto Title Erase (HDD only)

If there is not enough space for a timer recording, the recorder automatically erases old titles recorded on the HDD.
Set "Auto Title Erase" in "Features" setup to "On" (page 97). The oldest, played title is erased. The protected titles are not erased.

If the timer settings overlap

If one or more timer settings overlap, ♪ appears next to the program and the recording is suspended. The timer recording resumes its original status when the overlap condition no longer exists. To change the timer settings, see "Changing/Canceling Timer Recording or Reminder Settings" on page 55.

Using the Quick Timer function

You can set the recorder to record in 30 minute increments.

Press ● REC repeatedly to set the duration.

Each press advances the time in 30 minute increments. The maximum duration is six hours.

→0:30→1:00 - - -→5:30→6:00→(normal recording)

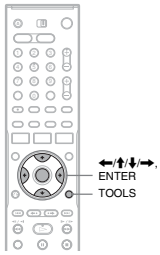
The time counter decreases minute by minute to 0:00, then the recorder stops recording (power does not turn off). Even if you turn off the recorder during recording, the recorder continues to record until the time counter runs out.

To cancel the Quick Timer

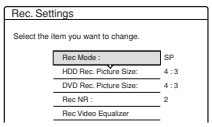
Press ● REC repeatedly until the counter appears in the front panel display. The recorder returns to normal recording mode.

Adjusting the recording picture quality and size

You can adjust the recording picture quality and picture size.



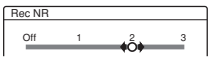
1 Before recording starts, press TOOLS to select "Rec Settings," and press ENTER.


Rec. Settings
Select the item you want to change.
Rec Mode : SP
HDD Rec. Picture Size: 4 : 3
DVD Rec. Picture Size: 4 : 3
Rec NR : 2
Rec Video Equalizer

2 Select the item you want to adjust, and press ENTER.

The adjustment display appears.

Example: Rec NR



"Rec Mode": Selects the recording mode for the desired recording time and picture quality. For more information, see "Recording mode" on page 49.

"HDD Rec. Picture Size"/"DVD Rec. Picture Size": Sets the picture size of the program to be recorded.
- 4:3 (default): Sets the picture size to 4:3.
- 16:9: Sets the picture size to 16:9 (wide mode).
- Auto (HDD only): Automatically selects the actual picture size.

"DVD Rec. Picture Size" works with DVD-Rs and DVD-RWs (Video mode) when the recording mode is set to HQ, HSP, SP or LSP. For all other recording modes, the screen size is fixed at "4:3."
For DVD-RWs (VR mode), the actual picture size is recorded regardless of the setting. For example, if a 16:9 size picture is received, the disc records the picture as 16:9 even if "DVD Rec. Picture Size" is set to "4:3."
For DVD+RWs/DVD+Rs, the screen size is fixed at "4:3."

"Rec NR" (noise reduction): Reduces noise contained in the video signal.

"Rec Video Equalizer": Adjusts the picture in greater detail.
Press ↑/↓ to select the item you want to adjust, then press ENTER.
- Contrast: Changes the contrast.
- Brightness: Changes the overall brightness.
- Color: Makes the colors deeper or lighter.
- Hue: Changes the color balance.

3 Adjust the setting using ←/↑/↓/→, and press ENTER.

The default setting is underlined.
"Rec NR": (weak) Off 1 ~ 2 ~ 3 (strong)
"Rec Video Equalizer":
- Contrast: (weak) –3 ~ 0 ~ 3 (strong)
- Brightness: (dark) –3 ~ 0 ~ 3 (bright)
- Color: (light) –3 ~ 0 ~ 3 (deep)
- Hue: (red) –3 ~ 0 ~ 3 (green)

Repeat steps 2 and 3 to adjust any other items.

Notes

- If one program contains two picture sizes, the selected size is recorded. However, if the 16:9 signal cannot be recorded as 16:9, it is recorded as 4:3.
- Remnants of images may appear on your screen when using "Rec NR."
- "Rec Video Equalizer" does not affect the input of the DV IN jack and COMPONENT VIDEO IN jacks.

Creating chapters in a title

The recorder can automatically divide a recording (a title) into chapters by inserting chapter marks during recording. To disable this function, set "Auto Chapter" in "Features" setup to "Off" (page 96).

When recording on the HDD or a DVD-RW (VR mode)

The recorder detects changes in the picture and sound and automatically inserts chapter marks. You can also insert and erase chapter marks manually (page 76).

When recording on other recordable discs

Chapter marks are inserted at approximately 6 minute intervals during recording.

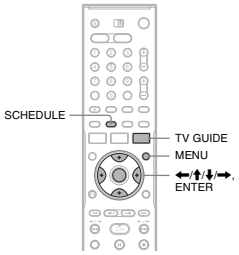
Note

When dubbing (page 79), the chapter marks in the dubbing source are not retained in the dubbed title.

Changing/Canceling Timer Recording or Reminder Settings

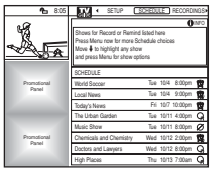
HDD +RW -RWVR -RWVideo +R -R

You can change or cancel timer and reminder settings using the SCHEDULE list.



1 With the TV Guide On Screen system turned off, press SCHEDULE.

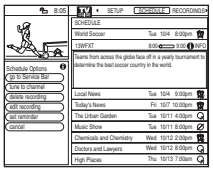
The SCHEDULE list appears.


SETUP
SCHEDULE
RECORDING
INFO
Shows for Record or Remind listed here
Press Menu now for more Schedule choices
Move ↓ to highlight any show
and press Menu for show options
SCHEDULE
Promotional Panel
Promotional Panel
World Soccer Tue 10/4 8:00pm
Local News Tue 10/4 9:00pm
Today's News Fri 10/7 10:00pm
The Urban Garden Tue 10/11 4:00pm
Music Show Tue 10/11 8:00pm
Chemicals and Chemistry Wed 10/12 2:00pm
Doctors and Lawyers Wed 10/12 8:00pm
High Places Thu 10/13 7:00am

2 Select the Record or Remind timer setting you want to change using ↑/↓.

3 Press MENU.

The cursor moves to the Panel Menu.


SETUP
SCHEDULE
RECORDING
INFO
SCHEDULE
World Soccer Tue 10/4 8:00pm
TIMER1 8:00 INFO
Teams from across the globe face off in a yearly tournament to determine the best soccer country in the world.
Schedule Options
go to Service Bar
tune to channel
delete recording
edit recording
set reminder
cancel
Local News Tue 10/4 9:00pm
Today's News Fri 10/7 10:00pm
The Urban Garden Tue 10/11 4:00pm
Music Show Tue 10/11 8:00pm
Chemicals and Chemistry Wed 10/12 2:00pm
Doctors and Lawyers Wed 10/12 8:00pm
High Places Thu 10/13 7:00am

4 Select an option using ↑/↓, and press ENTER.

- "watch now" (or "tune to channel"): changes to the channel of the selected program.
- "delete recording" (or "delete reminder"): cancels the recording or the reminder setting.
- "edit recording" (or "edit reminder"): displays the Panel Menu to change the recording (page 50) or reminder settings (page 45).
- "set reminder" (or "set recording"): sets the selected program to either remind or record in addition to its current setting. For example, if a program is set to record, selecting "set reminder" will set the program to "remind" and still record.

To close the SCHEDULE list

Press TV GUIDE.

To change the SCHEDULE list

1 Press SCHEDULE.
The SCHEDULE list appears.

2 Press ↑/↓ to move the cursor to the Service Bar.

3 Select "SCHEDULE" in the Service Bar, and press MENU.
- "sort by": sorts the Record or Remind settings by "date," "title" or "event" ("record" or "remind").
- "new manual recording": sets the recording timer (page 52).
- "new manual reminder": sets the remind timer. See step 5 of "Setting the "Remind" Timer" on page 45.

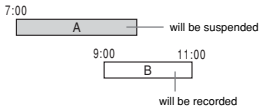
4 Select “sort by.”

5 Select an option, and press ENTER.
The cursor moves to “done.”
Press ENTER again to exit the Panel Menu.

If two or more timer settings overlap

The timer recording set last has priority over the other settings and is recorded. All other overlapped settings are suspended, even if the setting only partially overlaps the setting with priority. ⟲ appears next to programs that are suspended.

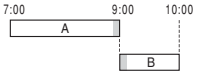
Example: You set the timer in order of A, and then B.



Note that if you modify setting A (for instance, if you extend the recording time), then setting A becomes the last timer recording you set and will have priority over setting B.

If the end and start time of two timer settings are the same

The end of program A or the beginning of program B will be cut.



If you connect a digital video camera with a DV IN jack

See “DV/Digital8 Dubbing” on page 84 for an explanation of how to record from the DV IN jack.

Hint

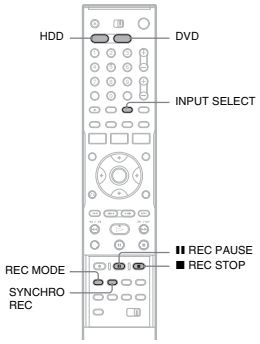
You can adjust the settings for the recording picture before recording. See “Adjusting the recording picture quality and size” on page 53.

Notes

- When recording a video game image, the screen may not be clear.
- Any program that contains a Copy-Never copy guard signal cannot be recorded. The recorder continues to record, but a blank screen will be recorded.

Recording From Connected Equipment

HDD +RW -RWVR -RWVideo +R -R



Recording from connected equipment with a timer (Synchro Rec)

You can set the recorder to automatically record programs from connected equipment that has a timer function (such as a satellite tuner). Connect the equipment to the LINE IN 1 jacks of the recorder (page 30).
When the connected equipment turns on, the recorder starts recording a program from the LINE IN 1 jacks. If you have connected a set top box, be sure to set “Set Top Box Control” to “Off” (page 90).

1 Before recording, select HDD or DVD.
If you select DVD, insert a recordable DVD (see “Inserting a Disc” on page 31).

2 Set “Synchro Rec” in “Features” setup to “Record to HDD” or “Record to DVD” (page 97).

3 Press INPUT SELECT repeatedly to select “L1.”

4 Press REC MODE repeatedly to select the recording mode.
For details about the recording mode, see page 49.

5 Set the timer on the connected equipment to the time of the program you want to record, and turn it off.

6 Press SYNCHRO REC.
The SYNCHRO REC indicator lights up on the front panel. The recorder is ready to start Synchro-Recording.
The recorder automatically starts recording when it receives an input signal from the connected equipment. The recorder stops recording when the connected equipment turns off.

To stop recording

Press ■ REC STOP or SYNCHRO REC.

To cancel Synchro Rec

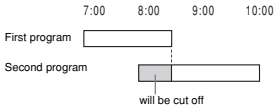
Press SYNCHRO REC.
The SYNCHRO REC indicator on the recorder turns off.

Notes

- The recorder starts recording only after detecting the video signal from the connected equipment. The beginning of the program may not be recorded regardless of whether or not the recorder’s power is on or off.
- During Synchro-Recording, other operations such as normal recording cannot be done.
- To use the connected equipment while the recorder is standing by for Synchro-Recording, cancel Synchro-Recording by pressing SYNCHRO REC. Be sure to turn off the connected equipment and press SYNCHRO REC to reset Synchro-Recording before the timer recording starts.
- The Synchro Rec function does not work with some tuners. For details, see the tuner’s operating instructions.
- To use the Synchro Rec function, you must first set the recorder’s clock correctly.

If the timer settings of a Synchro-Recording and another timer recording overlap

Regardless of whether or not the program is a Synchro Rec program, the program that starts first has priority and the second program starts recording only after the first program has finished.



Recording from connected equipment without a timer

You can record from a connected VCR or similar device. To connect a VCR or similar device, see “Connecting a VCR or Similar Device” on page 28. Use the DV IN jack on the front panel if the equipment has a DV output jack (i.LINK jack).

1 Press HDD or DVD.
If you select DVD, insert a recordable DVD (see “Inserting a Disc” on page 31).

2 Press INPUT SELECT to select an input source according to the connection you made.
The front panel display changes as follows:

Channel number → L1 → L2 → L3 → DV

3 Press REC MODE repeatedly to select the recording mode.
For details about the recording mode, see page 49.

4 Press ❚❚ REC PAUSE to set this recorder to record pause.

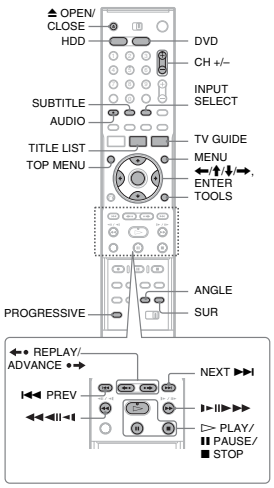
5 Insert the source tape into the connected equipment and set to playback pause.

6 At the same time, press ❚❚ REC PAUSE on this recorder and the pause or play button on the connected equipment.
Recording starts.
To stop recording, press ■ REC STOP on this recorder.

➡continued

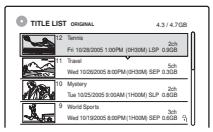
Playing

HDD +RW -RWVR -RWVideo +R -R
DVD VCD CD DATA DVD DATA CD



1 Press HDD or DVD.
- If you select DVD, insert a disc (see “Inserting a Disc” on page 31).
- If you insert a DVD VIDEO, VIDEO CD, or CD, press ▷ PLAY. Playback starts.

2 Press TITLE LIST.
For details about the Title List, see “3. Playing the Recorded Program (Title List)” on page 34.
Example: DVD-RW (VR mode)


TITLE LIST ORIGINAL
4.3 / 4.7GB
12 Tennis 2ch
Fri 10/28/2005 1:00PM (0H30M) LSP 0.9GB
11 Travel 5ch
Wed 10/26/2005 8:00PM (0H30M) SEP 0.3GB
10 Mystery 2ch
Tue 10/25/2005 9:00AM (1H00M) SLP 0.6GB
9 World Sports 3ch
Wed 10/19/2005 8:00PM (1H00M) SEP 0.6GB

3 Select the title, and press ENTER.
The sub-menu appears.

4 Select “Play,” and press ENTER.
Playback starts from the selected title.

To stop playback

Press ■ STOP.

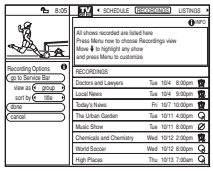
Playing titles with the TV Guide On Screen system

To select the “list” or “group” view

1 Press TV GUIDE.
TV Guide On Screen appears.

2 Press ↑/↓ to move the cursor to the Service Bar.

3 Select “RECORDINGS” in the Service Bar using ←/→, and press MENU.
The cursor moves to the Panel Menu.



4 Select an option using ↑/↓.
- “view as”: select “list” to view all recorded programs as a single list, or “group” to list episodes under a single program title.
- “sort by”: sorts the recorded programs by “date” or by “title” name.

➡continued

5 Press ←/→ to make a selection, and press ENTER.
The cursor moves to “done.”

6 Press ENTER again to exit the Panel Menu.

To play a title

◆ List View

Select a program using ↑/↓, and press ENTER.
Playback starts.
To make adjustments, press MENU while the program is selected and select one of the following.
• “play from beginning”
• “delete episode”

◆ Group View

1 Select a program using ↑/↓, and press ENTER.
The episodes appear.

2 Select an episode using ↑/↓, and press ENTER.
Playback starts.
To delete all episodes, press MENU while the program is selected and select “delete all episodes.”

Notes
- The program titles in the Title List and the TV Guide On Screen may not match.
- Information not written on the disc may also appear in the RECORDINGS screen.
- If you press TV GUIDE while making play list settings, the play list currently being set is canceled.
- JPEG image files and MP3 audio tracks do not appear in the TV Guide On Screen.

Playback options

To check the position of the buttons below, see the illustration on page 59.

Buttons	Operations
AUDIO HDD -RWVR DVD VCD CD	Selects one of the audio tracks recorded on the disc when pressed repeatedly. DVD : Selects the language. HDD -RWVR : Selects the main or sub sound. VCD CD : Selects stereo or monaural audio tracks.
SUBTITLE DVD	Selects a subtitle language when pressed repeatedly.
ANGLE DVD	Selects an angle when pressed repeatedly. If various angles (multi-angles) for a scene are recorded on the disc, “” appears in the front panel display.
SUR (surround) +RW -RWVR -RWVideo +R -R DVD	Selects one of the TVS effects when pressed repeatedly. TVS* (TV Virtual Surround) lets you enjoy virtual surround sound effects created from the front left and right speakers. The selected setting is displayed in the front panel display for a few seconds. “TVS OFF”: No surround effect “TVS DYNAMIC”: Creates one set of virtual rear speakers. “TVS WIDE”: Creates five sets of virtual rear speakers. “TVS NIGHT”: Creates five sets of virtual rear speakers. Effective at low volume. “TVS STANDARD”: Creates three sets of virtual rear speakers. Effective when you use two separate front speakers. * TVS was developed by Sony to produce home surround sound with just a stereo TV.
PROGRESSIVE HDD +RW -RWVR -RWVideo +R -R DVD VCD	Switches the type of video output signal to interlace or progressive format (page 19).
←• REPLAY/ADVANCE •→ (instant replay/instant advance) HDD +RW -RWVR -RWVideo +R -R DVD	Replays the scene/briefly fast forwards the scene.
I◀◀ PREV/NEXT ▶▶I	Goes to the beginning of the previous/next title/chapter/scene/track. For the HDD, you cannot go to the beginning of the previous/next title.

➡continued

Buttons	Operations
◀◀ (◀II ◀I/I▶ II▶) ▶▶ (fast reverse/fast forward)	Fast reverses/fast forwards the disc when pressed during playback. Search speed changes as follows: fast reverse: ◀◀1 ← ◀◀2 ← ← ◀◀3*2 ← ← ← fast forward: → 1▶▶*1 → → 2▶▶ → → → 3▶▶*2 When you press and hold the button, fast forward/fast reverse continues at the selected speed until you release the button. *1 When you press ▶▶ once during playback of a title recorded in the HDD, you can play quickly with sound (“x1.5” appears). *2 ◀◀3 and 3▶▶ are only available for the HDD and DVDs.
◀◀ (◀II ◀I/I▶ II▶) ▶▶ (slow, freeze frame) HDD +RW -RWVR -RWVideo +R -R DVD VCD * * Playback direction only	Plays in slow motion when pressed for more than one second in pause mode. Plays one frame at a time when pressed briefly in pause mode.
II PAUSE	Pauses playback.

To resume normal playback, press ▷ PLAY.

Notes
- To enjoy the TVS function, set “Digital Out” to “On” and “Dolby Digital” to “D-PCM” in “Audio” setup.
- The volume may be reduced when surround effects are set.
- When the playback signal does not contain a signal for the rear speakers, the surround effects will be difficult to hear.
  In addition, the surround effects may also be difficult to hear depending on the title being played and the environment where the recorder is being used.
- When you select one of the surround modes, turn off the surround settings of the connected TV or amplifier (receiver).
- Make sure that your listening position is between and at an equal distance from your speakers, and that the speakers are located in similar surroundings.
- Angles and subtitles cannot be changed with titles recorded on this recorder.
- 96 kHz PCM audio and DTS audio do not have surround effects.
- The surround effects do not work while performing playback quickly with sound.

To playback quickly with sound (Scan Audio)

When you press ▶▶ during playback of a title recorded in the HDD, you can play quickly with dialogue or sound (“x1.5” appears).
No sound is output when you press ▶▶ two or more times to change search speed.

To resume playback from the point where you stopped (Resume Play)

When you press ▷ PLAY again after you stop playback, the recorder resumes playback from the point where you pressed ■ STOP.
To start from the beginning, press TOOLS to select “Play Beginning,” and press ENTER.
Playback starts from the beginning of the title/track/scene.

The point where you stopped playing is cleared when:
– you open the disc tray (except for HDD).
– you play another title (except for HDD).
– you switch the Title List menu to Original or Playlist (HDD/DVD-RW in VR mode only).
– you edit the title after stopping playback.
– you change the settings on the recorder.
– you turn off the recorder (VIDEO CD/CD/DATA DVD/DATA CD only).
– you make a recording (except for HDD/DVD-RWs in VR mode).
– you switch between JPEG and MP3.

Note
You cannot resume playback during TV Pause.

To use the DVD’s Menu

When you play a DVD VIDEO, or a finalized DVD+RW, DVD-RW (Video mode), DVD+R, or DVD-R, you can display the disc’s menu by pressing TOP MENU or MENU.

To play VIDEO CDs with PBC functions

PBC (Playback Control) allows you to play VIDEO CDs interactively using the menu on your TV screen.
When you start playing a VIDEO CD with PBC functions, the menu appears.
Select an item using the number buttons and press ENTER. Then, follow the instructions in the menu (press ▷ PLAY when “Press SELECT” appears).
The PBC function of Super VIDEO CDs does not work with this recorder. Super VIDEO CDs are played in continuous play mode only.

To play restricted DVDs (Parental Control)

If you play a restricted DVD, the message “Do you want temporarily change parental control to *?” appears on your TV screen.

1 Select “OK” and press ENTER.
The display for entering your password appears.

2 Enter your four-digit password using the number buttons.

3 Press ENTER to select “OK.”
The recorder starts playback.

To register or change the password, see “Parental Control (DVD VIDEO only)” on page 96.

To lock the disc tray (Child Lock)

You can lock the disc tray to prevent children from ejecting the disc.
When the recorder is turned on, hold down ■ STOP until “LOCKED” appears in the front panel display. The ⏏ OPEN/CLOSE button does not work while the Child Lock is set.

To unlock the disc tray, hold down ■ STOP until “UNLOCKED” appears in the front panel display when the recorder is turned on.

Hints
- You can also use the ▷ PLAY button in step 3 (page 59) to start playback.
- Even if you select “Factory Setup” in “Options” setup (page 99), the Child Lock remains set.

Notes on playing DTS sound tracks on a CD

- When playing DTS-encoded CDs, excessive noise will be heard from the analog stereo jacks. To avoid possible damage to the audio system, the consumer should take proper precautions when the analog stereo jacks of the recorder are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1-channel decoder system must be connected to the digital jack of the recorder.
- Set the sound to “Stereo” using the AUDIO button when you play DTS sound tracks on a CD (page 61).

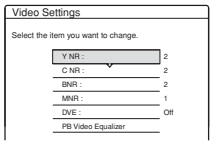
Notes on playing DVDs with a DTS sound track

DTS audio signals are output only through the DIGITAL OUT (COAXIAL or OPTICAL) jack.
When you play a DVD with DTS sound tracks, set “DTS” to “On” in “Audio” setup (page 95).

Adjusting the picture quality

HDD +RW -RWVR -RWVideo +R -R DVD VCD

1 Press TOOLS during playback to select “Video Settings,” and press ENTER.



2 Select an item, and press ENTER.
The adjustment display appears.
“Y NR” (luminance noise reduction): Reduces noise contained in the luminance element of the video signal.
“C NR” (chroma noise reduction): Reduces noise contained in the color element of the video signal.
“BNR” (block noise reduction): Reduces “block noise” or mosaic like patterns in the picture.
“MNR” (mosquito noise reduction): Reduces the faint noise appearing around the outlines of the images. The noise reduction effects are automatically adjusted within each setting range according to the video bit rate and other factors.
“DVE” (digital video enhancer): Sharpens the outlines of the images.

➡continued

"PB Video Equalizer" (Playback video equalizer): Adjusts the picture in greater detail.
Select an item and press ENTER.
• Contrast: changes the contrast.
• Brightness: changes the overall brightness.
• Color: makes the colors deeper or lighter.
• Hue: changes the color balance.

3 Press ←/→ to adjust the setting, and press ENTER.

The default settings are underlined.
"Y NR": (weak) Off 1 2 3 (strong)
"C NR": (weak) Off 1 2 3 (strong)
"BNR": (weak) Off 1 2 3 (strong)
"MNR": (weak) Off 1 2 3 (strong)
"DVE"*: (weak) Off 1 2 3 (strong)
"PB Video Equalizer":
• Contrast: (weak) –3 ~ 0 ~ 3 (strong)
• Brightness: (dark) –3 ~ 0 ~ 3 (bright)
• Color: (light) –3 ~ 0 ~ 3 (deep)
• Hue: (red) –3 ~ 0 ~ 3 (green)

Repeat steps 2 and 3 to adjust any other items.

* "1" softens the outlines of the images. "2" enhances the outlines and "3" enhances them more than "2."

Notes
- If the outlines of the images on your screen become blurred, set "BNR" and/or "MNR" to "Off."
- Depending on the disc or the scene being played, the above BNR, MNR, Y NR, or C NR effects may be hard to discern. And, these functions may not work with some screen sizes.
- When using the DVE function, noise found in the title may become more apparent. In this case, it is recommended that you use the BNR function with the DVE function. If the condition still does not improve, set the DVE level to "1" or "Off."

Adjusting the sound quality

HDD +RW -RWVR -RWVideo +R -R DVD VCD CD DATA CD

1 Press TOOLS during playback to select "Audio Settings," and press ENTER.

2 Select an item, and press ENTER.

"Surround" (TVS): Selects one of the surround modes. For more information, see "Playback options" on page 61.

"Audio Filter": Selects the digital filter to reduce noise above 22.05 kHz (Fs* is 44.1 kHz), 24 kHz (Fs is 48 kHz), or 48 kHz (Fs is above 96 kHz).
• Sharp (default): Provides a wide frequency range and spatial feeling.
• Slow: Provides smooth and warm sound.

"AV SYNC": When the video is delayed, this function delays the audio for synchronization with the video (0 to 120 milliseconds). Larger numbers indicate a longer audio delay for synchronization with the video. When dubbing to a VCR or other video recording equipment, be sure to return this setting to 0 ms (default).

* Sampling frequency of audio source. This function only adjusts the output signals from the LINE OUT (R-AUDIO-L).

3 Press ←/↑/↓/→ to select the option, and press ENTER.

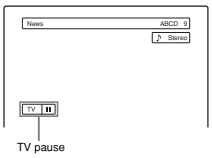
Note
There may be little effect by changing the Audio Filter depending on the disc or playback environment.

Pausing a TV Broadcast (TV Pause)

You can pause a current TV broadcast, and then continue watching the program at a later time. This is useful when you receive an unexpected phone call or visitor while watching TV.

1 While viewing a TV broadcast with this recorder, press ❚❚ PAUSE.

The picture pauses. You can pause the picture for up to three hours.



TV pause

2 Press ❚❚ PAUSE or ▷ PLAY again to resume watching the program.

Notes
- Paused titles are not saved to the HDD.
- This function is canceled when:
  – ■ STOP is pressed.
  – CH +/– is pressed.
  – DVD is pressed.
  – ⏏ OPEN/CLOSE is pressed.
  – TITLE LIST is pressed.
  – INPUT SELECT is pressed.
  – the recorder is turned off.
  – a timer recording or Synchro-Recording is started.
  – DV/Digital8 dubbing or regular dubbing is started.
- It may take a few seconds to resume playback of the paused program.
- Even if you fast forward the recorded program, there will always be a time difference of about one minute or more between the recorded program and the current TV broadcast.

Playing from the beginning of the program you are recording (Chasing Playback)

HDD -RWVR

"Chasing Playback" allows you to view the recorded part of a program while the recording is being made. You do not need to wait until the recording finishes.

Press TOOLS while recording to select "Chasing Playback," and press ENTER.

Playback starts from the beginning of the program you are recording.
When you fast forward to the point that you are recording, Chasing Playback returns to normal playback.

Notes
- For DVD-RWs (VR mode), this function does not work when recording:
  – on a 1x-speed DVD-RW.
  – in the HQ or HSP recording mode.
- The DVD's picture on your TV screen freezes for a few seconds when you fast forward/fast reverse or instant replay/advance the recording.
- Chasing Playback is possible from one minute or more after recording starts.
- Even if you fast forward the recorded program, there will always be a time difference of about one minute or more between the recorded program and the current TV broadcast.

Playback

→continued

Playing a previous recording while making another (Simultaneous Rec and Play)

HDD +RW -RWVR -RWVideo +R -R DVD VCD CD DATA DVD DATA CD

"Simultaneous Rec and Play" allows you to view a previously recorded program while recording programs. Playback continues even if a timer recording starts. Use this function as follows:
• While recording to the HDD:
  Play another title on the HDD.
  Play a previously recorded program on a DVD by pressing DVD.
• While recording to a DVD:
  Play a previously recorded program on the HDD by pressing HDD.
• While recording to a DVD-RW (VR mode)*1:
  Play another title on the same DVD-RW (VR mode) disc.*2

*1 Simultaneous Rec and Play function does not work when you record:
– on a 1x-speed DVD-RW.
– in the HQ or HSP recording mode.

*2 Picture noise may appear depending upon the condition of the recording, or when playing a title recorded in the HQ or HSP recording mode. The picture freezes for a few seconds when you use fast forward/fast reverse or instant replay/advance.

You can also play a DVD VIDEO, VIDEO CD, Super VIDEO CD, CD, DATA DVD, or DATA CD while recording on the HDD.

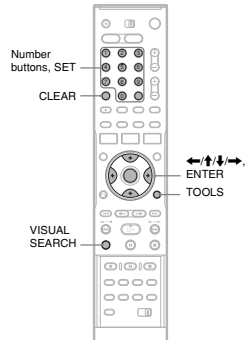
Example: Play another title on the HDD while recording to the HDD.

1 While recording, press TITLE LIST to display the HDD Title List.
2 Select the title you want to play, and press ENTER.
3 Select "Play" from the sub-menu, and press ENTER.
Playback starts from the selected title.

Example: Play a DVD while recording to the HDD.

1 While recording, press DVD and insert the DVD into the recorder.
2 Press TITLE LIST to display the DVD Title List.
3 Select the title you want to play, and press ENTER.
4 Select "Play" from the sub-menu, and press ENTER.
Playback starts from the selected title.

Searching for a Title/ Chapter/Track, etc.

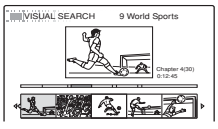


Searching by Thumbnail (Visual Search)

HDD +RW -RWVR -RWVideo +R -R

Each chapter is displayed as a thumbnail. You can search for the desired scene visually.

1 Press VISUAL SEARCH during playback.



2 Select a scene using ←/→, and press ENTER.

Playback of the selected scene is started.

Searching by title number or time code

HDD +RW -RWVR -RWVideo +R -R DVD VCD CD DATA DVD DATA CD

You can search a disc by title, chapter, scene or track. As titles and tracks are assigned individual numbers, select the title or track by entering its number. You can also search for a scene using the time code.

1 Press TOOLS during playback to select a search method, and press ENTER.

"Title Search" (for DVDs)
"Chapter Search" (for HDD/DVDs)
"Track Search" (for CDs/DATA CDs)
"Search" (for VIDEO CDs)
"Album Search" (for DATA DVDs/DATA CDs)
"Time Search" (for HDD/DVDs): Searches for a starting point by entering the time code.
"File Search" (for DATA DVDs/DATA CDs)

The display for entering the number appears.
Example: Title Search

The number in parentheses indicates the total number of titles, tracks, etc.

2 Press the number buttons to select the number of the title, chapter, track, time code, etc., you want.

For example: Time Search
To find a scene at 2 hours, 10 minutes, and 20 seconds, enter "21020."
If you make a mistake, press CLEAR to cancel the number, then select another number.

3 Press SET.

The recorder starts playback from the selected number.

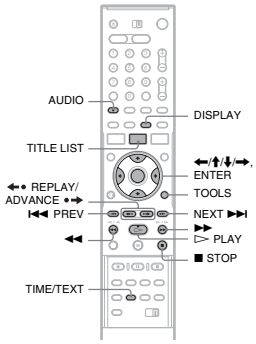
Note
"Title Search" is not applicable to the HDD.

Playback

Playing MP3 Audio Tracks or JPEG Image Files

DATA DVD DATA CD

You can play MP3 audio tracks and JPEG image files on DATA CDs (CD-ROMs/CD-Rs/CD-RWs) or JPEG image files on DATA DVDs (DVD-ROMs/DVD+RWs/DVD+Rs/DVD-RWs/DVD-Rs).



1 Insert a disc.
See "Inserting a Disc" on page 31.

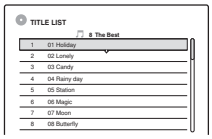
2 Press ▷ PLAY.
For MP3 discs, playback starts from the first MP3 audio track on the disc.
For JPEG files, a slideshow of the pictures on the disc begins.
If the DATA CD contains both MP3 audio tracks and JPEG image files, playback starts from the JPEG image files the first time ▷ PLAY is pressed.

Selecting an MP3 album or track

1 Press TITLE LIST.
The album list appears.
To change the page, press ←• REPLAY/ ADVANCE •→.

2 Select an album, and press ENTER.
The sub-menu appears.

3 Select "View Album," and press ENTER.
The track list appears.
To change the page, press ←• REPLAY/ ADVANCE •→.



4 Select a track, and press ENTER.
"Play": Plays the track.
"Play Beginning": Plays the beginning of the track.
"Track Data": Shows data about the track such as artist and album name.

To stop playback
Press ■ STOP.

To fast review or forward a track
Press ◄◄/►► during playback.

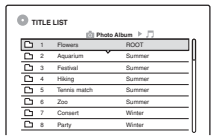
To go to the previous or next MP3 audio track
Press I◄◄ PREV or NEXT ►►I during playback. If you repeatedly press I◄◄ PREV or NEXT ►►I, you will go to the previous or next album.

To go to the previous or next album
Press ←• REPLAY/ADVANCE •→ during playback.

Hint
Press the AUDIO button to switch between stereo or monaural audio tracks.

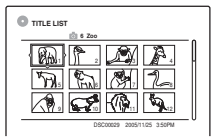
Selecting a JPEG album or image

1 Press TITLE LIST.
The album list appears.
To change the page, press ←• REPLAY/ ADVANCE •→.



2 Select an album, and press ENTER.
The sub-menu appears.

3 Select "View Album," and press ENTER.
The image list appears.
To change the page, press ←• REPLAY/ ADVANCE •→.



4 Select an image, and press ENTER.
"View Image": Shows the image on the entire screen.
"Slideshow": Shows the images in the album as a slideshow.
"Image Data": Shows data about when the picture was taken.

To stop viewing the JPEG image
Press ■ STOP.

To view the previous or next picture
Press I◄◄ PREV/NEXT ►►I while the picture is displayed.

To rotate a picture
Press TOOLS while the image is displayed to select "Rotate Right" or "Rotate Left," and press ENTER.

To change the slideshow speed
Press TOOLS while the album list or image list is displayed to select "Slideshow Speed," and press ENTER. Then select the speed from "Fast" (quick), "Normal," and "Slow."

To go to the previous or next album
Press ←• REPLAY/ADVANCE •→ while the JPEG image is displayed.

Hints
- If you are playing a DATA CD that has both MP3 and JPEG files, you can switch between photo and music albums by using the ←/→ buttons when the album list is displayed.
- You can rotate a JPEG image by using the ←/→ buttons when the image is displayed.
- Press DISPLAY repeatedly to show information about the JPEG album or image on your TV screen. Then press TIME/TEXT to toggle between the current selected image number and album number.

Notes
- If the DVD disc, such as a disc from a DVD video camera, contains both video and JPEG images, only the video can be played back.
- Some JPEG files, especially files of three million pixels or more, may lengthen the slideshow interval.
- Rotated JPEG images will not be saved when you press ■ STOP or switch to another folder.
- Images larger than 720 × 480 will be reduced to 720 × 480 when displayed.
- Images larger than 4 mega bytes cannot be displayed.
- Progressive JPEG images cannot be displayed.
- When you attempt to play a broken file or a file that does not satisfy the play conditions, ▨ appears but the recorder cannot play the file.

Playback

→continued

About MP3 audio tracks and JPEG image files

MP3 is audio compression technology that satisfies certain ISO/MPEG regulations. JPEG is image compression technology.
You can play MP3 (MPEG1 Audio Layer 3) format audio tracks and JPEG image files on DATA CDs (CD-ROMs/CD-Rs/CD-RWs) or JPEG image files on DATA DVDs (DVD-ROMs/DVD+RWs/DVD+Rs/DVD-RWs/DVD-Rs).
DATA CDs must be recorded according to ISO9660 Level 1, Level 2 or Joliet format for the recorder to recognize the MP3 tracks.
DATA DVDs must be recorded in Universal Disc Format (UDF). You can also play discs recorded in MultiSession.
See the instructions supplied with the CD-R/CD-RW/DVD-R/DVD-RW drives and the recording software (not supplied) for details on the recording format.

Note on MultiSession/Border discs
If MP3 audio tracks or JPEG image files are recorded in the first session/border, the recorder will also play MP3 audio tracks or JPEG image files in other sessions/borders. If audio tracks and images in Music CD format or Video CD format are recorded in the first session/border, only the first session/border will be played back.

Note
The recorder may not be able to play some DATA CDs/ DATA DVDs created in the Packet Write format.

MP3 audio tracks or JPEG image files that the recorder can play

The recorder can play the following tracks and files:
– MP3 audio tracks with the extension ".MP3," ".mp3," or ".Mp3."
– JPEG image files with the extension ".JPEG," ".jpg," ".JPG," ".Jpg," ".jpeg," or ".Jpeg."
– JPEG image files that conform to the DCF* image file format.

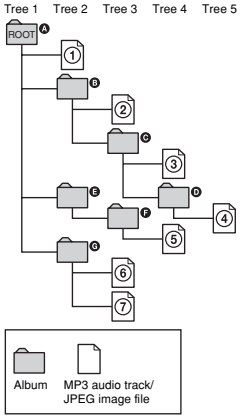
* "Design rule for Camera File system": Image standards for digital cameras regulated by JEITA (Japan Electronics and Information Technology Industries Association).

Notes
- The recorder will play any data with the extension ".MP3," ".mp3," ".Mp3," ".JPEG," ".jpg," ".JPG," ".Jpg," ".jpeg," or ".Jpeg" even if they are not in MP3 or JPEG format. Playing these data may generate a loud noise which could damage your speaker system.
- The recorder does not conform to audio tracks in mp3PRO format.
- Some files cannot be played.
- The letters that cannot be displayed are replaced with "•."

About playback order of albums, tracks, and files

Albums play in the following order:

Structure of disc contents



When you insert a DATA CD/DATA DVD and press ▷ PLAY, the numbered tracks (or files) are played sequentially, from ① through ⑦. For JPEG image files, press ADVANCE •→ to go to the next album. (For instance, when you want to go from ① to ②.) Any sub-albums/tracks (or files) contained within a currently selected album take priority over the next album in the same tree. (Example: ⓒ contains ⓓ so ④ is played before ⑤.) When you press TITLE LIST and the list of album names appears (page 34), the album names are arranged in the following order: Ⓐ → Ⓑ → ⓒ → ⓓ → Ⓕ → Ⓖ. Albums that do not contain tracks (or files) (such as album Ⓔ) do not appear in the list.

Hints
- If you add numbers (01, 02, 03, etc.) to the front of the track/file names when you store the tracks (or files) in a disc, the tracks and files will be played in that order.
- Since a disc with many trees takes longer to start playback, it is recommended that you create albums with no more than two trees.

Notes
- Depending on the software you use to create the DATA DVD/DATA CD, the playback order may differ from the above illustration.
- No more than a total of 199 individual folders can be played. (Folders that do not contain JPEG/MP3 files are counted as well.)
- No more than a total of 999 folders and files can be played. (Files other than JPEG/MP3 files, and folders that do not contain JPEG/MP3 files are counted as well.)
- No more than 200 folders and files can be recognized in a single folder. (Folders that do not contain JPEG/ MP3 files are counted as well.)
- Proceeding to the next or another album may take some time.
- This recorder supports MP3 audio bit rates up to 160 kbps.

Playback

Before Editing

This recorder offers various edit options for various disc types. Before you edit, check the disc type in the front panel display, and select the option available for your disc (page 10).

Notes
- You may lose the edited contents if you remove the disc or a timer recording starts while editing.
- DVD discs created by DVD video cameras cannot be edited on this recorder.

Edit options for the HDD and DVD-RWs (VR mode)

HDD -RWVR

You can enjoy advanced edit functions. First you have two options for the HDD and DVD-RWs (VR mode): editing either the original recording (called the "original"), or the playback information created from the original (called a "Playlist"). Since each is different in nature and offers different merits, read the following and select the one that better suits your needs.

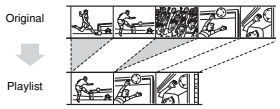
To edit original titles

Edits made to the original titles are final. If you plan to retain an unaltered original recording, create and edit a Playlist (see below). The edit functions available for original titles are:
– Labeling a title (page 73).
– Setting protection against erasure (page 73).
– Erasing a title (page 73).
– Erasing multiple titles (page 75).
– Erasing a section of a title (A-B Erase) (page 74).
– Erasing all titles on the disc (page 76).
– Erasing a chapter (page 74).
– Dividing one title into two titles (HDD only) (page 75).

To create and edit Playlist titles

A Playlist is a group of Playlist titles created from the original title for editing purposes. When you create a Playlist, only the control information necessary for playback, such as the playback order, is stored on the disc. Since the original titles are left unaltered, Playlist titles can be re-edited.

Example: You have recorded the final few matches of a soccer tournament on a DVD-RW (VR mode). You want to create a digest with the goal scenes and other highlights, but you also want to keep the original recording.



In this case, you can compile highlight scenes as a Playlist title. You can even rearrange the scene order within the Playlist title ("Creating and Editing a Playlist" on page 77).
The advanced edit functions available for Playlist titles are:
– Setting protection against erasure (HDD only) (page 73).
– Labeling a title (page 73).
– Erasing a title (page 73).
– Erasing multiple titles (page 75).
– Erasing a section of a title (A-B Erase) (page 74).
– Rearranging the title order (DVD-RWs (VR mode) only) (page 78).
– Dividing a title into multiple titles (page 75).
– Combining multiple titles into one title (page 78).
– Erasing a chapter (page 74).

Hint
You can display the disc's Playlist titles in the Title List (Playlist), or the original titles in the Title List (Original). To switch the two Title Lists, press TOOLS while a Title List is displayed, and select "Original" or "Playlist."

Notes
- The Playlist title calls up data from the original titles for playback. When an original title is used for a Playlist title, the original title cannot be erased.
- If a message appears and indicates that the disc's control information is full, erase or edit unnecessary titles.
- Playlist titles containing titles recorded with the "Copy-Once" copy protection signal cannot be dubbed or moved (page 80).

Edit options for DVD+RWs/DVD-RWs (Video mode)/DVD+Rs/DVD-Rs

+RW -RWVideo +R -R

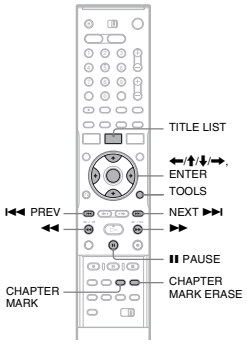
You can perform simple edits. Since Video mode titles are actual recordings on the disc, you cannot undo any edits you make. The edit functions available for Video mode titles are:
– Setting protection against erasure (page 73).
– Labeling a title (page 73).
– Erasing a title (page 73).
– Erasing multiple titles (page 75).
– Erasing a section of a title (A-B Erase) (DVD+RWs only) (page 74).
– Erasing all titles on the disc (page 76).
– Erasing titles to open up disc space (Disc Map) (DVD+RWs and DVD-RWs (Video mode) only) (page 76).

Notes
- When editing a DVD+R or DVD-R, finish all editing before finalizing the disc. You cannot edit a finalized disc.
- The available disc space does not increase even when you erase titles for DVD+Rs and DVD-Rs.
- If a message appears and indicates that the disc's control information is full, erase or edit unnecessary titles.

Erasing and Editing a Title

HDD +RW -RWVR -RWVideo +R -R

This section explains the basic edit functions. Note that editing is irreversible. To edit the HDD or DVD-RWs (VR mode) without changing the original recordings, create a Playlist title (page 77).



1 Press TITLE LIST.
For HDD titles or DVD-RWs in VR mode, press TOOLS and select "Original" or "Playlist" from the TOOLS menu to switch the Title Lists, if necessary.

2 Select a title, and press ENTER.
The sub-menu appears.

3 Select an option, and press ENTER.
You can make the following edits to the title.
"Erase": Erases the selected title. Select "OK" when asked for confirmation.
"Protect Title": Protects the title. Select "On" when the Protection display appears. "⚿" appears next to the protected title. To cancel the protection, select "Off."
"Title Name": Allows you to enter or re-enter a title name (page 38).
"Set Thumbnail": Changes the title's thumbnail picture that appears in the Title List (page 36).

→continued

"A-B Erase": Erases a section of the title (page 74).
"Delete Chapter": Erases chapter units of the title while viewing thumbnails (see below).
"Divide Title": Divides a title into two titles (page 75).

Hints
- You can erase multiple titles at one time (page 75), or erase all of the titles on the disc at once (page 76).
- You can automatically erase titles that have already played (page 97).
- You can label or re-label DVDs (page 39).

Note
DVD-RW (VR mode) playlist titles cannot be protected.

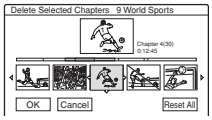
Erasing a chapter (Delete Chapter)

HDD -RWVR

Thumbnails are displayed for each chapter. You can easily select and erase a section in a title. Note that erasing a chapter cannot be undone.

1 After step 2 of "Erasing and Editing a Title," select "Delete Chapter," and press ENTER.

2 Select a thumbnail of the chapter using ←/→, and press ENTER.



- To cancel the selection, press ENTER again.
- To erase multiple chapters, repeat step 2.
- To reset all selections, select "Reset All."

3 Select "OK," and press ENTER.
The display asks for confirmation.

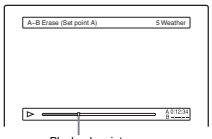
4 Select "Yes," and press ENTER.

Erasing a section of a title (A-B Erase)

HDD +RW -RWVR

You can select a section (scene) in a title and erase it. Note that erasing scenes in a title cannot be undone.

1 After step 2 of "Erasing and Editing a Title," select "A-B Erase" and press ENTER.
The display for setting point A appears.
- To return to the beginning of the title, press II PAUSE and then press I◀◀ PREV.



Playback point

2 Select point A by pressing ◀◀/▶▶, and press ENTER.
The display for setting point B appears.

3 Select point B by pressing ◀◀/▶▶, and press ENTER.
The display asks for confirmation.
- To reset either point A or B, select "Change A" or "Change B," and go to step 2 or 3.
- To preview the title without scenes to be erased, select "Preview" (except for DVD+RWs).

4 Select "OK," and press ENTER.
The scene is erased, and the display asks whether to erase another scene.
- To continue, select "Yes," and repeat from step 2.
- To finish, select "No."

Hint
A chapter mark is inserted after the scene was erased. The chapter mark divides the title into separate chapters on either side of the mark.

Notes
- Images or sound may be momentarily interrupted at the point where you erase a section of a title.
- Sections shorter than five seconds may not be erased.
- For DVD+RWs, the erased section may be slightly different from the points you selected.

Erasing multiple titles (Erase Titles)

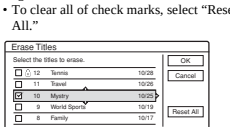
HDD +RW -RWVR -RWVideo +R -R

You can select and erase more than one title at one time using the TOOLS menu.

1 Press TITLE LIST.

2 Press TOOLS to select "Erase Titles," and press ENTER.
The display for selecting titles to be erased appears.

3 Select a title, and press ENTER.
A check mark appears in the check box next to the selected title.
- To clear the check mark, press ENTER again.
- To clear all of check marks, select "Reset All."



4 Repeat step 3 to select all of the titles you want to erase.

5 When you finish selecting titles, select "OK," and press ENTER.
The list of the titles to be erased appears for confirmation.
- To change the selection, select "Change," and repeat from step 3.

6 Select "OK" and press ENTER.
The titles are erased.

Dividing a title (Divide Title)

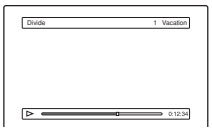
HDD -RWVR *

If you want to dub a long title to a disc but do not want to reduce the picture quality, divide the title into two shorter titles. Note that dividing a title cannot be undone.
* Only playlist titles can be divided for DVD-RW (VR mode).

1 Press TITLE LIST.
Press TOOLS and select "Original" or "Playlist" from the TOOLS menu to switch the Title Lists, if necessary.

2 Select a title, and press ENTER.
The sub-menu appears.

3 Select "Divide Title," and press ENTER.
The display for setting the dividing point appears. The title starts to play in the background.
- To return to the beginning of the title, press II PAUSE and then press I◀◀ PREV.



4 Select the dividing point by pressing ◀◀/▶▶, and press ENTER.
The display asks for confirmation.
- To change the dividing point, select "Change."

5 Select "OK," and press ENTER.
The display for entering the title name appears.
- To use the same title name as before, select "No."

6 Select "Yes," and press ENTER to enter a new name.
Follow the explanations on page 38. After you enter a new name, the title is divided in two.

→continued

Erasing all titles on the disc

HDD +RW -RWVR -RWVideo +R -R

1 Press TOOLS to select "Disc Info," and press ENTER.
The "Disc Information" display appears.

2 Select "Erase All," and press ENTER.

3 Select "OK," and press ENTER.
All titles on the disc are erased (except the protected titles).

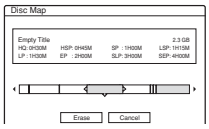
Erasing titles to open up disc space (Disc Map)

+RW -RWVideo

When recording on a DVD+RW or DVD-RW (Video mode), the recorder searches for the largest open space and records there. Before you start, check the disc status by using Disc Map, and erase titles to create a space large enough for the recording.

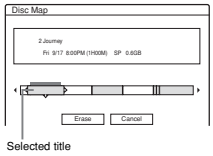
1 Insert a disc and press TITLE LIST.

2 Press TOOLS to select "Disc Map," and press ENTER.
The "Disc Map" display appears.
• To check the open space, select the space by pressing ←/→.



• When ◄ or ► appears on either side of the screen, you can scroll sideways by pressing ←/→.

3 Select a title by pressing ←/→, and press ENTER.
The display for selecting titles to be erased appears.
• To cancel the selection, press ENTER again.
• To erase more titles, repeat step 3.



Selected title

4 Select "Erase," and press ENTER.
The display asks for confirmation.

5 Select "OK," and press ENTER.
The selected titles are erased, freeing up disc space.
• To change the selection, select "Change."

Creating chapters manually

HDD -RWVR

You can manually insert a chapter mark at any point you like during playback or recording.

Press CHAPTER MARK at the point where you want to divide the title into chapters.
Each time you press the button, "Marking ..." appears on the screen and the scenes to the left and right of the mark become separate chapters.

To erase chapter marks
You can combine two chapters by erasing the chapter mark during playback.
Press I◄◄ PREV/NEXT ►►I to search for a chapter number, and while displaying the chapter containing the chapter mark you want to erase, press CHAPTER MARK ERASE.
The current chapter combines with the previous chapter.

Notes
• When dubbing, any chapter marks you enter will be erased.
• To insert a chapter mark manually during recording, set "Auto Chapter" in "Features" setup to "Off."

Creating and Editing a Playlist

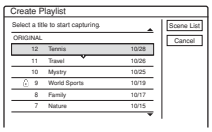
HDD -RWVR

Playlist edit allows you to edit or re-edit without changing the actual recordings. You can create up to 97 Playlist titles.

Note
Once you create a Playlist title from original titles, you will be unable to erase or edit the original titles.

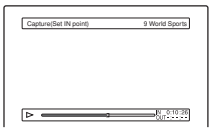
1 Press TITLE LIST.

2 Press TOOLS to select "Create Playlist," and press ENTER.



3 Select the title you want to include in the Playlist title, and press ENTER.
The sub-menu appears.
"Capture": Adds a section of the title to the Playlist title as one scene.
"Capture All": Adds the entire title to the Playlist title as one scene. After capturing the title, go to step 8.

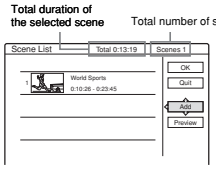
4 Select "Capture," and press ENTER.
The display for setting the start point (IN) appears. The title starts to play in the background.
• To return to the beginning of the title, press ❚❚ PAUSE and then press I◄◄ PREV.



5 Select the IN point by pressing ◄◄/►►, and press ENTER.
The display for setting the end point (OUT) appears, and the title continues to play in the background.

6 Select the OUT point by pressing ◄◄/►►, and press ENTER.
The display asks for confirmation.
To reset the IN or OUT point, select "Change IN" or "Change OUT" and repeat step 5 or 6.
To view the selected scene, select "Preview."

7 Select "OK," and press ENTER.
The Scene List menu appears with all of the selected scenes.



• To add more scenes, select "Add" and go to step 3.
• To preview all of the captured scenes in the listed order, select "Preview."

8 Select the scene you want to re-edit, and press ENTER.
The sub-menu appears.
"Move": Changes the scene order.
"Erase": Erases the scene. The selection is canceled.
"Preview": Displays thumbnail pictures of the scenes.
"Change IN": Allows you to change the IN point, and repeat from step 5.
"Change OUT": Allows you to change the OUT point, and repeat from step 6.

9 When you finish editing the Scene List, select "OK," and press ENTER.
The display for entering the title name appears. To enter a new name, select "Enter" (page 38).

10 Select "OK" to use the default name, and press ENTER.

continued

To play the Playlist title
Press TOOLS while the Title List menu is turned on. Then, select "Playlist" and press ENTER. When the Title List (Playlist) menu appears, select a title and press ▷ PLAY.

Hint
When a Playlist title is created, the IN and OUT points will become chapter marks, and each scene will become a chapter.

Note
The picture may pause when the edited scene is played.

Moving a Playlist title (Change Order)

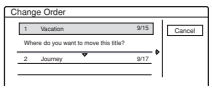
-RWVR

You can change the Playlist title order within the Title List (Playlist).

1 Press TITLE LIST to turn on the Title List (Playlist) menu.
If the Title List (Original) menu appears, press TOOLS and select "Playlist."

2 Select the title you want to move, and press ENTER.
The sub-menu appears.

3 Select "Change Order," and press ENTER.



4 Select a new location for the title by pressing ↑/↓, and press ENTER.
The title moves to the new location.

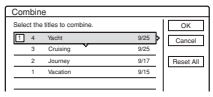
Combining multiple Playlist titles (Combine Titles)

HDD -RWVR

1 Press TITLE LIST to turn on the Title List (Playlist) menu.
If the Title List (Original) menu appears, press TOOLS and select "Playlist."

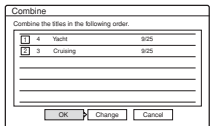
2 Press TOOLS to select "Combine Titles," and press ENTER.
The display for selecting titles appears.

3 Select a title, and press ENTER.
A number indicating the order in which you selected the title appears.
To cancel the selection, press ENTER again.



4 Repeat step 3 to select all of the titles you want to combine.
To cancel all of the selections, select "Reset All."

5 Select "OK," and press ENTER.
The list of titles to be combined appears.
To change the selection, select "Change" and go to step 3.



6 Select "OK," and press ENTER.
The display for selecting a title name from among the selected titles appears.
To enter a new name, select "Enter Text," and follow the explanations on page 38.
To change the selection, select "Change" and go to step 3.

7 Select a name, and press ENTER.
The titles are combined.

Note
When the number of chapters in the title to be combined exceeds the limit, the chapters at the end are combined into a single chapter.

Dividing a Playlist title (Divide Title)

HDD -RWVR

You can divide a Playlist title. For operations, see page 75.

Dubbing (HDD ↔ DVD)

Before Dubbing

HDD +RW -RWVR -RWVideo +R -R

In this section, "dubbing" refers to "copying a recorded title on the internal hard disk drive (HDD) to another disc, or vice versa." You can select to dub one title at a time (Title Dubbing – see "Dubbing a single title (Title Dub)" on page 81), or multiple titles all at once (Multiple Title Dubbing – see "Dubbing multiple titles (Dub Selected Titles)" on page 82).
Before you start, read the following precautions, which are common to both dubbing methods.

If you want to record from a digital video camera connected to the DV IN jack, see "DV/Digital8 Dubbing" on page 84. To record from equipment connected to the LINE IN jacks, see "Recording from connected equipment without a timer" on page 57.

Before you start…
• Select the disc type according to your needs (page 10). This recorder can record on various discs.
• Timer recordings and Synchro-Recording do not start during dubbing. Before you start, check the Timer List menu to see if there is any timer recording due to start during dubbing.
• When "Auto Chapter" of "Features" setup is set to "On," chapter marks are automatically inserted at approximately 6 minute intervals while dubbing from the HDD to a DVD, or when the recorder detects picture and sound changes while dubbing from a DVD to the HDD. The chapter marks in the dubbing source are not retained in the dubbed title.
• For a title whose picture size (16:9 or 4:3) is mixed:
  – When dubbed from the HDD to DVD-RW (Video mode) or DVD-R, the picture size is determined by the setting in "DVD Rec. Picture Size" (page 53).
  – When dubbed from HDD to DVD+RW or DVD+R, the picture size is always 4:3.
  – When dubbed from HDD to DVD-RW (VR mode), the originally recorded picture size is retained.

Hints
• When you dub a Playlist title, it is recorded as an Original title.
• When dubbed from a DVD to the HDD, the picture size and the sound types originally recorded are retained.

Notes
• To play a dubbed disc on other DVD equipment, finalize the disc (page 40).
• The recorder may not function as described depending on the disc status. Follow the instructions that appear on the screen.
• You cannot dub from DVD VIDEOs to the HDD.
• Thumbnails that you have set for the originally recorded title (page 36) will not be retained in the dubbed title.

About "Dub Mode"

With this recorder, the recording mode for dubbing is displayed as "Dub Mode." Two dubbing method are available: High-speed Dubbing and Rec Mode Conversion Dubbing. Read the following and select according to the required time, disc space, and picture quality.

Dubbing at high-speed (High-speed Dubbing)
HDD ➡ +RW / -RWVR / -RWVideo / +R / -R
Allows you to dub what you have stored in the HDD to a high-speed DVD (8x-speed DVD+RWs/6x-speed DVD-RWs/16x-speed DVD+Rs/16x-speed DVD-Rs, or slower versions of each disc type), without changing the recording mode.
Set "Dub Mode" to "Fast" in "Title Dub" or "Dub Selected Titles" display (page 81). You cannot select "Fast" when titles that cannot be dubbed at high speed are selected (such as the titles displayed in "Notes" below). The minimum required time is as follows (approximate).

continued

Required times for High-speed Dubbing from HDD to DVD (for 60-minute program)*1

Speed*2	6x	6x*3	8x*4	8x*4	2.4x
Rec. mode	High-speed DVD-RW	High-speed DVD+RW	High-speed DVD-R	High-speed DVD+R	DVD+R (Double Layer)
HQ	10 min.	10 min.	8 min.	8 min.	25 min.
HSP	6 min. 40 sec.	6 min. 40 sec.	5 min.	5 min.	16 min. 40 sec.
SP	5 min.	5 min.	3 min. 45 sec.	3 min. 45 sec.	12 min. 30 sec.
LSP	4 min.	4 min.	3 min.	3 min.	10 min.
LP	3 min. 20 sec.	3 min. 20 sec.	2 min. 30 sec.	2 min. 30 sec.	8 min. 20 sec.
EP	2 min. 30 sec.	2 min. 30 sec.	2 min.	2 min.	6 min. 15 sec.
SLP	1 min. 40 sec.	60 min.*5	1 min. 15 sec.	60 min.*5	60 min.*5
SEP	1 min. 15 sec.	60 min.*5	56 sec.	60 min.*5	60 min.*5

*1 The values in the above table are for reference only. Actual times for dubbing also require time for creating disc's control information and other data.
*2 This is the maximum recording speed of this recorder. The value may vary depending on the disc condition. Also, this recorder may be unable to record at the maximum speed for discs that support recording speeds exceeding the maximum value.
*3 The maximum drive speed of this recorder is 6x when using 6x-speed or faster DVD+RWs.
*4 The maximum drive speed of this recorder is 8x when using 8x-speed or faster DVD+Rs/DVD-Rs.
*5 High-speed dubbing is not available when dubbing titles recorded in SLP and SEP mode to DVD+RWs and DVD+Rs.

Notes
- High-speed Dubbing is not available for the following titles:
  – Titles recorded in HQ+.
  – Titles recorded in mixed picture size (4:3 and 16:9 etc.), (except DVD-RWs (VR mode)).
- When dubbed to a DVD-RW (Video mode)/ DVD+RW/DVD+R/DVD-R, remnants of edited titles may remain on the disc. If you edit a title, use the Rec Mode Conversion Dubbing method. This will smooth out the pauses between the scenes.
- When playing a dubbed DVD+R DL disc, the video and audio may be momentarily interrupted at the point where the layers switch.

Rec Mode Conversion Dubbing

HDD ↔ +RW / -RWVR / -RWVideo / +R / -R

Allows you to dub from the HDD to a DVD or vice versa, in a dubbing mode that differs from the original recordings. For example, when you dub an HQ title (data size is large) in SP mode, you can reduce the data size, saving more titles using less space.
Select a mode different from the original recording in "Dub Mode" in the steps of "Dubbing a single title (Title Dub)" on page 81 or "Dubbing multiple titles (Dub Selected Titles)" on page 82.
When a title recorded to HDD in HQ or HQ+ mode is converted to another mode, the recorder automatically assigns an appropriate bit rate, thus retaining the original picture quality as much as possible.

Note
The picture quality will not improve even if a title is converted to a recording mode of better picture quality.

Dubbing restriction

You cannot dub movies and other DVD Videos to the HDD. Also, when dubbing from a DVD to the HDD, a gray, blank screen will be recorded for scenes that contain a copy protection signal.

Copy protection signals	Dubbing
Copy-Free (No copy protection signal)	HDD ↔ +RW / -RWVR / -RWVideo / +R / -R
Copy-Once	HDD → -RWVR *

* CPRM-compatible DVD-RWs (VR mode) only
CPRM (Content Protection for Recordable Media) is a coding technology that protects copyrights for images.

Move

HDD → -RWVR

Titles containing "Copy-Once" copy protection signals can be moved only from HDD to DVD-RW (VR mode)* (after the title is moved, the original title in the HDD is erased). The "Move" function is performed using the same procedure as dubbing (page 81). Titles containing "Copy-Once" copy protection signals are indicated with COPY .

Notes
- The following titles in the HDD cannot be moved.
  – Protected titles
  – Playlist titles
  – Original titles referenced from the playlist
- If the move operation is stopped before completion, the title in the HDD is not erased.

* CPRM-compatible DVD-RWs (VR mode) only.

Dubbing

HDD +RW -RWVR -RWVideo +R -R

Dubbing a single title (Title Dub)

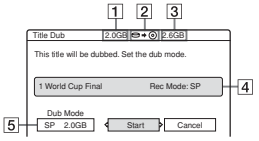
1 Insert the DVD that you are going to dub to or from.

2 Press HDD or DVD to select the source.

3 Press TITLE LIST to turn on the Title List menu.

4 Select a title, and press ENTER.
The sub-menu appears.

5 Select "Dubbing," and press ENTER.
The display for selecting the dubbing mode appears.
If a title with COPY (page 81) is selected in the title list, a confirmation screen is displayed. To "Move," select "Yes."



1 Size of the title (approximate)
2 Direction of dubbing
3 Available space on the disc to be dubbed (approximate)
4 Information about the title to be dubbed
5 Dubbing mode and the space that remains after dubbing (approximate)

6 Select "Dub Mode."

→continued

7 Select a dubbing mode by pressing ↑/↓.

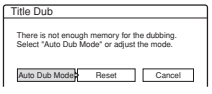
Fast* → HQ → HSP → SP → LSP
↑ SEP ← SLP ← EP ← LP ←

* Appears when High-speed Dubbing is available for the title (page 79).

8 Select "Start," and press ENTER.
The dubbing indication appears in the front panel display (page 38).

To automatically adjust the dubbing mode (Auto Dub Mode)

If there is not enough available space on the target disc, the recorder automatically selects a dubbing mode with lower picture quality according to the available space. If there is insufficient disc space in the selected dubbing mode, the following display appears after step 8.



Select "Auto Dub Mode" and press ENTER to start dubbing. To manually select another dubbing mode, select "Reset," and go to step 7.

To stop dubbing

Press TOOLS to select "Stop Dubbing," and press ENTER. When asked for confirmation, select "Yes," and press ENTER.

Hints
- If disc space is still insufficient for the selected dubbing mode, erase unnecessary parts of the title, or free up disc space by erasing titles on the disc (page 76).
- You can turn off the recorder during dubbing. The recorder completes dubbing even after being turned off.

Dubbing multiple titles (Dub Selected Titles)

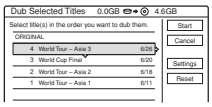
A maximum of 30 selected titles can be dubbed at once. You can select the dubbing mode for each title.

1 Insert the DVD that you are going to dub to or from.

2 Press HDD or DVD to select the source.

3 Press TITLE LIST to turn on the Title List menu.

4 Press TOOLS to select "Dub Selected Titles," and press ENTER.



5 Select titles in the order you want to dub, and press ENTER.
The titles are numbered in the selected order. To cancel the selection, press ENTER again. If a title with COPY (page 81) is selected in the title list, a confirmation screen is displayed. To "Move," select "Yes."

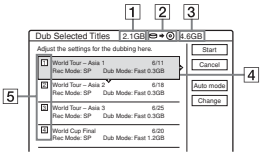
6 Repeat step 5 to select all of the titles you want to dub.
To make adjustments for each of the titles, select "Settings" (see "To adjust the settings for each title" below). To cancel all of the selections, select "Reset," and go to step 5.

7 Select "Start," and press ENTER.
The dubbing indication appears in the front panel display (page 38).

To adjust the settings for each title

You can make detailed settings for each of the selected titles during Multiple Title Dubbing.

1 In step 6 of "Dubbing multiple titles (Dub Selected Titles)" on page 82, select "Settings" and press ENTER.
The following display for making the adjustments appears.
To re-select titles, select "Change," and go to step 5 of "Dubbing multiple titles (Dub Selected Titles)" above. To have the recorder adjust the dubbing mode so all of the selected titles fit in, select "Auto mode."



1 Total size of the selected titles
2 Direction of dubbing
3 Available space on the disc to be dubbed (approximate)
4 Information about the title to be dubbed (title name, original recording mode, dubbing mode, and data size after dubbing)
5 Order of dubbing

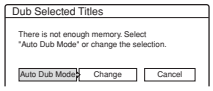
2 Select the title which you want to adjust, and press ENTER.
The sub-menu appears.
"Dub Mode": Selects the dubbing mode for each title (page 79).
"Change Order": Moves the title to change the dubbing order. Press ↑/↓ to select a new location, and press ENTER.
"Cancel": Cancels the title selection. The title is excluded from dubbing.

3 Select an option, and press ENTER.

4 When you finish making adjustments, select "Start," and press ENTER.

To automatically adjust the dubbing mode (Auto Dub Mode)

If there is not enough available space on the target disc, the recorder automatically selects a dubbing mode with lower picture quality according to the available space. The same dubbing mode is set for all of the titles. If disc space is insufficient for the selected dubbing mode, the following display appears after step 7 of "Dubbing multiple titles (Dub Selected Titles)" on page 82.



Select "Auto Dub Mode" and press ENTER. If you have selected only one title, select "OK."

To stop dubbing

Press TOOLS to select "Stop Dubbing," and press ENTER. When asked for confirmation, select "Yes," and press ENTER.

Hints
- You can turn off the recorder during dubbing. The recorder completes dubbing even after being turned off.
- You can start Multiple Title Dubbing by selecting "DUBBING" from the System Menu.

Before DV/Digital8 Dubbing

This section explains dubbing with a digital video camera via the DV IN jack on the front panel. If you want to dub by way of the LINE IN jacks, see "Recording from connected equipment without a timer" on page 57.

To record from the DV IN jack

The DV IN jack on this recorder conforms to the i.LINK standard. You can connect any other equipment that has an i.LINK (DV) jack, and record digital signals.
Follow the instructions in "Preparing for DV/Digital8 dubbing," and then move on to the section on dubbing. For more information about i.LINK, see "About i.LINK" on page 108.

Hint

If you plan to do additional editing on a disc after the initial dub, use the DV IN jack and record on a DVD-RW (VR mode) or HDD.

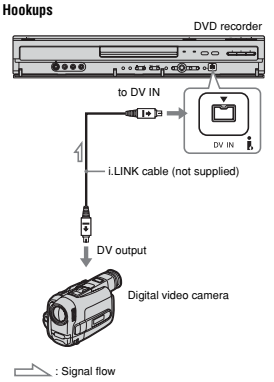
Preparing for DV/Digital8 dubbing

You can connect a digital video camera to the DV IN jack on the recorder to record or edit from a DV/Digital8 format tape. Operation is straightforward because the recorder will fast forward and rewind the tape for you – you do not need to operate your digital video camera. Do the following to start using the "DV Edit" functions of this recorder.
See the instruction manual supplied with the digital video camera as well before connecting.

Notes

- The DV IN jack is for input only. It will not output signals.
- You cannot use the DV IN jack when:
  – your digital video camera does not work with this recorder. Connect the camera to the LINE IN jack and follow the instructions of "Recording from connected equipment without a timer" on page 57.
  – the input signal is not in DVC-SD format. Do not connect a MICRO MV format digital video camera even if it has an i.LINK jack.
  – the images on the tape contain copy protection signals, which limit recording.
- If you want to play the disc on other DVD equipment, finalize the disc (page 40).

Hookups



1 Press HDD or DVD to select the recording destination.
If you select DVD, insert a disc (see "Inserting a Disc" on page 31).

2 Insert the source DV/Digital8 format tape into your digital video camera.
For the recorder to record or edit, your digital video camera must be set to video playback mode.

3 Press INPUT SELECT on the remote repeatedly to select "DV."
The front panel display changes as follows:

Channel number → L1 → L2 → L3 → DV

4 Press REC MODE on the remote repeatedly to select the recording mode.
The recording mode changes as follows:

→ HQ → HSP → SP → LSP →
← SEP ← SLP ← EP ← LP ←

For details about the recording mode, see page 49.

5 Press TOOLS on the remote to select "DV/D8 Audio Input," and press ENTER. Then, select the setting for the audio input.
"Stereo1" (default): Records original sound only. Normally select this when dubbing a DV format tape.
"Mix": Records both stereo 1 and 2.
"Stereo2": Records additional audio only. Select "Mix" or "Stereo2" only if you have added a second audio channel when recording with your digital video camera.
You are ready to start dubbing. Select one of the dubbing methods on the following pages.

Hints

- You can turn off the recorder during dubbing. The recorder completes dubbing even after being turned off.
- You can adjust the settings for the recording picture before recording. See "Adjusting the recording picture quality and size" on page 53.

Notes

- You cannot connect more than one piece of digital video equipment to the recorder.
- You cannot control the recorder using another device or another recorder of the same model.
- You cannot record date, time, or the contents of the cassette memory onto the disc.
- If you record from a DV/Digital8 format tape that is recorded in multiple sound tracks, such as a tape with multiple sampling frequencies (48 kHz, 44.1 kHz, or 32 kHz), no sound or an unnatural sound will be output when playing back the sampling frequency switch point on the disc.
- In order to use this recorder's "Auto Chapter" setting (pages 85, 86), be sure to correctly set the clock on your digital video camera before shooting.
- The recorded picture may be momentarily affected if the picture size of the source image changes, or if there is nothing recorded on the tape.

Recording an Entire DV/Digital8 Format Tape (One Touch Dubbing)

HDD +RW -RWVR -RWVideo +R -R

You can record the entire contents of a DV/Digital8 format tape onto a disc with a single press of the ONE-TOUCH DUB button on the recorder. The recorder controls the digital video camera for the whole process, and completes the recording.

◆How chapters are created

The contents dubbed to the HDD or DVD become a single title. When "Auto Chapter" of "Features" setup is set to "On" (page 96), this title is divided into chapters. When dubbing to the HDD or a DVD-RW (VR mode), each shooting session on the tape becomes a chapter on the disc. For other discs, the recorder divides the title into chapters at approximately 6 minute intervals.

Follow steps 1 to 5 of "Preparing for DV/Digital8 dubbing" on page 84, and press ONE-TOUCH DUB on the recorder.
The recorder rewinds the tape and then starts recording the tape contents.
When the recording is finished, the recorder rewinds the tape in the digital video camera.

To stop during recording

Open the remote's cover and press ■ REC STOP.
Note that it may take a few seconds for the recorder to stop recording.

Hints

- If you set "Finalize Disc" of "One Touch Dubbing" to "Auto" in "Features" setup (page 97), the recorded disc (except DVD-RW (VR mode)) will automatically be finalized after recording is finished.
- You can play back a previously recorded title on the HDD while One Touch Dubbing is in progress.

Notes

- When a blank space between the recordings on the tape continues for more than five minutes, One Touch Dubbing ends automatically.
- The recorder records a blank for five minutes before it stops dubbing. To stop the blank recording, press ■ REC STOP.

Program Edit

HDD +RW -RWVR -RWVideo +R -R

You can select scenes from a DV/Digital8 format tape, and then automatically record selected scenes to the HDD or a DVD.

To use this function, you will do the following:

Connect your digital video camera and prepare for recording

↓

Select and edit the scenes you want to dub

Using the recorder's remote control, fast forward or rewind the tape to select the scenes. At this point, the selected scenes are not copied to the disc. The recorder only remembers the IN and OUT points of the scenes that you selected for dubbing. You can also reset, erase, or change the order of the scenes.

↓

Dub the selected scenes

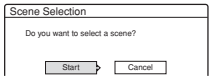
After you have selected the scenes, the recorder will fast forward and rewind the tape automatically and record the scenes to the HDD or a DVD.

◆How chapters are created

The contents dubbed to the HDD or DVD become a single title. When "Auto Chapter" of "Features" setup is set to "On" (page 96), this title is divided into chapters. When dubbing to the HDD or a DVD-RW (VR mode), each shooting session on the tape becomes a chapter on the disc. For other discs, the recorder divides the title into chapters at approximately 6 minute intervals.

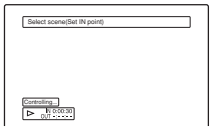
1 Follow steps 1 to 5 of "Preparing for DV/Digital8 dubbing" on page 84, and press SYSTEM MENU.

2 Select "DV/D8 EDIT," and press ENTER.
The display asks if you want to start selecting scenes.



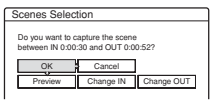
- If you have previously saved a program, the display asks if you want to edit an existing program or to create a new program. To resume editing the existing program, select "Saved Data," and go to step 6.

3 Select "Start," and press ENTER.
The display for setting the IN point (start of the scene) appears.
The scene starts to play in the background.

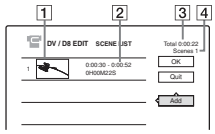


4 Select the IN point by pressing ◀◀/▶▶, and press ENTER.
The display for setting the OUT point (end of the scene) appears. The scene starts to play in the background from the IN point.

5 Select the OUT point by pressing ◀◀/▶▶, and press ENTER.
The display asks if you want to add the selected scene to the Scene List menu.
To preview the scene, select "Preview."
To reset either the IN or OUT point, select "Change IN" or "Change OUT," and repeat the steps above.



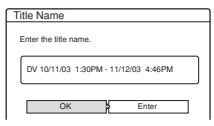
6 Select "OK," and press ENTER.
A new Scene List menu appears with the selected scene.
To add a scene, select "Add."



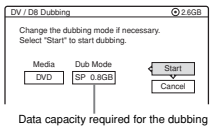
1 Thumbnail picture
2 Time information
3 Total duration of the program
4 Total number of scenes

7 When you finish adding scenes, select the scene you want to edit, and press ENTER.
The sub-menu appears.
"Move": Changes the scene order. Follow the explanations on the screen to change the order by pressing ↑/↓ and ENTER.
"Erase": Erases the scene. When asked for confirmation, select "OK."
"Preview": Plays the selected scene.
"Change IN": Changes the start of the scene. Repeat from step 4.
"Change OUT": Changes the end of the scene. Repeat from step 5.

8 When you finish editing the Scene List, select "OK," and press ENTER.
The display for entering the title name appears. To enter a new name, select "Enter," and follow the explanations on page 38.



9 Select "OK," and press ENTER.
The default title name is fixed, and the display asks if you want to start recording.
To change the disc media, select "Media" and press ↑/↓. To change the dubbing mode, select "Dub Mode" and press ↑/↓.



Data capacity required for the dubbing

10 Select "Start," and press ENTER.
The recorder starts recording the tape contents as programmed.
- If the recording does not fit due to the dubbing mode you selected, the display asks if you want to continue.
  To change the dubbing mode, select "Reset" and repeat from step 9.
  To have the recorder adjust the dubbing mode, select "Auto Dub Mode."
- If there is not enough disc space even after changing the dubbing mode, the display asks if you want to record halfway.
  To continue, select "OK."

To stop during recording

Open the remote's cover and press ■ REC STOP.
Note that it may take a few seconds for the recorder to stop recording.

Notes

- Contents recorded to the HDD or a DVD may not be recorded as programmed if the tape's time code is not sequential or there are blanks between the recordings on the tape. In this case, see "Recording from connected equipment without a timer" on page 57.
- The start and end points of a program may be different from what you have set if the source DV/Digital8 format tape is in any of the following conditions:
  – Recording mode was changed during the recording.
  – There is a blank space in the recorded portion of the tape.
- If you set the beginning of the tape as the IN point and the end point as the OUT point, the IN and OUT points may move slightly during dubbing.
- You cannot set a scene to be shorter than one second.

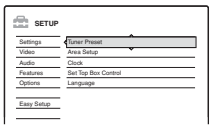
Antenna Reception and Language Settings (Settings)

The “Settings” setup helps you to make tuner, clock, and language settings for the recorder.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “SETUP,” and press ENTER.

3 Select “Settings,” and press ENTER.
The options of “Settings” appear. The default settings are underlined.
To turn off the display, press SYSTEM MENU repeatedly.



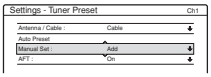
Tuner Preset

Notes
- You cannot presets channels for the connected cable box or satellite receiver.
- You cannot select “Tuner Preset” when you set “Set Top Box Control” to “On”.

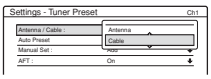
Auto Preset

Automatically presets the receivable channels. The recorder can receive VHF channels 2 to 13, UHF channels 14 to 69, and unscrambled CATV channels 1 to 125. First, we recommend that you preset the receivable channels in your area using automatic presetting methods.

1 Select “Tuner Preset” in “Settings,” and press ENTER.



2 Select “Antenna/Cable,” and press ENTER.



Cable	Presets cable TV channels.
Antenna	Presets VHF and UHF channels.

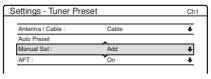
3 Select an option, and press ENTER.

4 Select “Auto Preset,” and press ENTER.
All receivable channels are preset in numerical sequence.

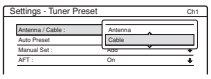
Manual Set

Presets or disables channels manually.
If some channels could not be set using the “Auto Preset” or “Easy Setup” function, you can set them manually.

1 Select “Tuner Preset” in “Settings,” and press ENTER.

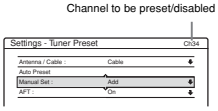


2 Select “Antenna/Cable,” and press ENTER.



Cable	Presets cable TV channels.
Antenna	Presets VHF and UHF channels.

3 Select the channel you want to preset using the number buttons and the SET button. To disable a channel, select the channel using CH +/–.

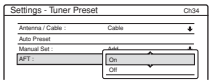


4 Select “Manual Set,” and press ENTER.

Add	Presets the channels.
Erase	Disables the channels.

5 Select “Add” to preset the channel, and press ENTER.

6 Select “AFT” and press ENTER.



On	Turns on the Auto Fine Tuning function. Normally, select this.
Off	Allows you to adjust the picture manually.

7 Select “On” to turn on AFT, and press ENTER.
To preset or disable another channel, repeat from step 2.
- If the Auto Fine Tuning function does not work effectively, select “Off” in step 6 and press ENTER. When the fine tuning bar appears, press ←/→ to obtain a clearer picture, and press ENTER.

8 To preset or disable another channel, repeat steps 3 to 7.

Area Setup

Sets up your area and zip code number. You need to set this correctly to use the TV Guide On Screen system.

1 Select “Area Setup” in “Settings,” and press ENTER.

2 Select “USA/Canada,” and press ENTER.

3 Select your country, and press ENTER.

4 Select “Zip Code,” and press ENTER.

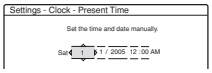
5 Enter your zip code number using ←/↑/↓/→, and press ENTER.

6 Select “OK,” and press ENTER.

Clock

Set the clock manually.

1 Select “Clock” in “Settings,” and press ENTER.



2 Press ↑/↓ to set the month, and press →. Set the day, year, hour, and minutes in sequence. Press ←/→ to select the item to be set, then press ↑/↓ to set the numbers. The day of the week is set automatically.

3 Press ENTER to start the clock.

Hint
To change the numbers in step 2, press ← to return to the item to be changed, and select the numbers by pressing ↑/↓.

→continued

Set Top Box Control

You can control your cable box/satellite receiver using the supplied set top box controller. See “Step 7: Easy Setup” on page 25 for details.

Set Top Box Control

On	Turns on the cable box/satellite receiver control function. See “Using the cable box/satellite receiver control function” (page 14).
Off	Turns off the cable box/satellite receiver control function. Select this if you do not want to use the supplied set top box controller.

When “Set Top Box Control” is set to “On,” you can make the following settings. Note that when you change “Set Top Box Control” to “On” or “Off,” all of the timer recording settings will be canceled.

◆ Brand Code
See “Cable Box/Satellite Receiver Brand Code” (page 117) for the brand code for your cable box or satellite receiver, and enter the code using the number buttons and ENTER.

◆ Connection
Selects the connection you used for your cable box or satellite receiver. When the cable box or satellite receiver is connected to the recorder’s LINE IN jacks, select the connection from “Line1,” “Line2,” or “Line3.” When the cable box or satellite receiver is connected to the recorder’s VHF/UHF IN jack, select the output channel, “Ch2,” “Ch3,” or “Ch4.”

◆ Ch. digit lock
Allows you to select whether to fix the digits for your cable box or satellite receiver.

Off	Select this when your cable box or satellite receiver only accepts a three or more digit channel number. Normally select this.
Lock to two digits	Select this only when your cable box or satellite receiver only accepts a two digit channel number.

◆ Mode for SET button
Select “Mode 1” or “Mode 2” if your cable box or satellite receiver requires pressing ENTER or SET, etc., after entering the channel number. If “Mode 1” does not work, try “Mode 2.” If your cable box or satellite receiver does not respond to either setting, contact the manufacturer of the cable box or satellite receiver.

Off	No code is sent when SET is pressed. Normally select this.
Mode 1	Sends the channel number you entered.
Mode 2	Sends the channel number you entered.

Language

OSD (On-Screen Display)
Switches the display language on the screen.

DVD Menu (DVD VIDEO only)
Switches the language for the DVD menu.

Audio (DVD VIDEO only)
Switches the language of the sound track.
When you select “Original,” the language given priority in the disc is selected.

Subtitle (DVD VIDEO only)
Switches the language of the subtitles recorded on the disc.
When you select “Audio Follow,” the subtitle language changes according to the language you selected for the sound track.

Hint
If you select “Others” in “DVD Menu,” “Subtitle,” or “Audio,” select and enter a language code from “Language Code List” on page 116 using the number buttons.

Note
If you select a language in “DVD Menu,” “Subtitle,” or “Audio” that is not recorded on the DVD VIDEO, one of the recorded languages will be automatically selected.

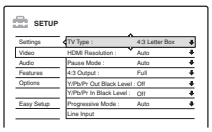
Video Settings (Video)

Video settings will adjust items related to the image, such as size and color.
Choose the settings according to the type of TV, tuner, or decoder connected to the DVD recorder.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “SETUP,” and press ENTER.

3 Select “Video,” and press ENTER.
The “Video” setup appears with the following options. The default settings are underlined.



TV Type

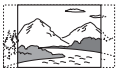
Sets the picture size when playing back a title recorded from 16:9 size video (page 53) or a 16:9 size commercial DVD video.
Select the playback picture size according to the type of connected TV (wide-screen/wide mode TV or conventional 4:3 screen TV).

16:9	Select this when connecting to a wide-screen TV or TV with a wide mode function.
4:3 Letter Box	Select this when connecting to a 4:3 screen TV. Displays a wide picture with bands on the upper and lower portions of the screen.
4:3 Pan Scan	Select this when connecting to a 4:3 screen TV. Automatically displays a wide picture on the entire screen and cuts off the portions that do not fit.

16:9

4:3 Letter Box

4:3 Pan Scan



Note
Depending on the disc, “4:3 Letter Box” may be selected automatically instead of “4:3 Pan Scan” or vice versa.

HDMI Resolution
Selects the type of video signals output from the HDMI OUT jack. When you select “Auto” (default), the recorder outputs video signals of the highest resolution acceptable for your TV. If the picture is not clear, natural or to your satisfaction, try another option that suits the disc and your TV/projector, etc. For details, refer also to the instruction manual supplied with the TV/projector, etc.

Auto	Normally, select this.
1920×1080i	Sends 1920×1080i video signals.
1280×720p	Sends 1280×720p video signals.
720×480p	Sends 720×480p video signals.

Note
Even when a setting other than “Auto” is selected and the connected TV cannot accept the resolution, the recorder automatically adjusts the video signals that are suitable for the TV.

Pause Mode (HDD/DVDs only)
Selects the picture quality in pause mode.

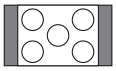
Auto	The picture, including subjects that move dynamically, is output with no jitter. Normally select this position.
Frame	The picture, including subjects that do not move dynamically, is output in high resolution.

→continued

4:3 Output

This setting is effective only when you set “TV Type” in “Video” to “16:9.”
Adjust this to watch 4:3 aspect ratio progressive signals. If you can change the aspect ratio on your progressive format (480p) compatible TV, change the setting on your TV, not the recorder. Note that this setting is effective only for HDMI connection or progressive signals output from the COMPONENT VIDEO OUT jacks.

Full	Select this when you can change the aspect ratio on your TV.
Normal	Select this when you cannot change the aspect ratio on your TV. Shows a 16:9 aspect ratio signal with black bands on left and right sides of the image.



16:9 aspect ratio TV

Y/Pb/Pr Out Black Level

Selects the black level (setup level) for the video signals output from the COMPONENT VIDEO OUT jacks (page 18).
This setting is not effective when the PROGRESSIVE indicator lights up on the front panel and the recorder outputs progressive signals.

On	Raises the standard black level. Select this when the picture appears too dark.
Off	Sets the black level of the output signal to the standard level. Normally, select this.

Y/Pb/Pr In Black Level

Selects the black level (setup level) for the NTSC video signals input from the COMPONENT VIDEO IN jacks (page 15). This setting is available when “Line1 Input” is set to “Component” (page 93).

On	Raises the standard black level. Select this when the picture appears too bright.
Off	Sets the black level of the input signals to the standard level. Normally, select this.

Progressive Mode

DVD software can be divided into two types: film based software and video based software. Video based software is derived from TV, such as dramas and sit-coms, and displays images at 30 frames/60 fields per second. Film based software is derived from film and displays images at 24 frames per second. Some DVD software contains both Video and Film.
In order for these images to appear natural on your screen when output in PROGRESSIVE mode, the progressive video signal needs to be converted to match the type of DVD software that you are watching.
You can fine-tune the progressive 480p video signals that are output when you press PROGRESSIVE (“PROGRESSIVE” lights up). Note that you must connect to a progressive format TV using the COMPONENT VIDEO OUT jacks (page 18).

Auto	Automatically detects the software type (Film-based or Video-based) and selects the appropriate conversion mode. Normally select this position.
Video	Fixes the conversion mode to the mode for Video-based software.

Line Input

Sets the method of inputting video signals from the LINE IN jacks on the rear panel of the recorder. Select an option for each of the items below according to the combination of jacks and methods that you are going to use.

◆Line1 Input

Selects a method of inputting video signals for the LINE IN 1 jack on the rear panel of the recorder.

Video	Inputs video signals.
S Video	Inputs S video signals.
Component	Inputs component signals.

◆Line3 Input

Selects the method of inputting video signals for the LINE IN 3 jack on the rear panel of the recorder. The pictures will not be clear if this setting does not match the type of video input signal.

Video	Inputs video signals.
S Video	Inputs S video signals.

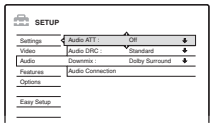
Audio Settings (Audio)

The “Audio” setup allows you to adjust the sound according to the playback and connection conditions.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “SETUP,” and press ENTER.

3 Select “Audio,” and press ENTER.
The “Audio” setup appears with the following options. The default settings are underlined.



Audio ATT (attenuation)

If the playback sound is distorted, set this item to “On.” The recorder reduces the audio output level. This function affects the output of the following jacks:
– LINE OUT (R-AUDIO-L) 1/2 jacks

On	Select this when the playback sound from the speakers is distorted.
Off	Normally select this position.

➡continued

Audio DRC (Dynamic Range Control) (DVDs only)

Makes the sound clear when the volume is turned down when playing a DVD that conforms to “Audio DRC.” This affects the output from the following jacks:
– LINE OUT (R-AUDIO-L) 1/2 jacks
– DIGITAL OUT (OPTICAL or COAXIAL)/ HDMI OUT jack only when “Dolby Digital” is set to “D-PCM” (page 94).

Standard	Normally select this position.
TV Mode	Makes low sounds clear even if you turn the volume down.
Wide Range	Gives you the feeling of being at a live performance.

Downmix (DVDs only)

Switches the method for mixing down to two channels when you play a DVD which has rear sound elements (channels) or is recorded in Dolby Digital format. For details on the rear signal components, see “4. Displaying the Playing Time and Play Information” on page 36. This function affects the output of the following jacks:
– LINE OUT (R-AUDIO-L) 1/2 jacks
– DIGITAL OUT (OPTICAL or COAXIAL)/ HDMI OUT jack when “Dolby Digital” is set to “D-PCM” (page 94).

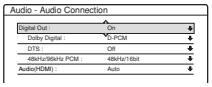
Dolby Surround	Normally select this position. Multi-channel audio signals are output to two channels for enjoying surround sounds.
Normal	Multi-channel audio signals are downmixed to two channels for use with your stereo.

Audio Connection

The following setup items switch the method of outputting audio signals when you connect a component such as an amplifier (receiver) with a digital input jack.
For connection details, see “Step 4: Connecting the Audio Cords” on page 20.
Select “Dolby Digital,” “DTS,” “48kHz/96kHz PCM,” and “Audio(HDMI)” after setting “Digital Out” to “On.”

If you connect a component that does not accept the selected audio signal, a loud noise (or no sound) will come out from the speakers, and may affect your ears or cause speaker damage.

1 Select “Audio Connection” in “Audio,” and press ENTER.



2 Select “Digital Out,” and press ENTER.

On	Normally select this position.
Off	The influence of the digital circuit upon the analog circuit is minimal.

3 Select “On,” and press ENTER.

4 Set the digital output signal.

• Dolby Digital (HDD/DVDs only)
Selects the type of Dolby Digital signal.

D-PCM	Select this when the recorder is connected to an audio component lacking a built-in Dolby Digital decoder. The surround effects of output signals are determined by the “Downmix” setting item in “Audio” setup.
Dolby Digital	Select this when the recorder is connected to an audio component with a built-in Dolby Digital decoder.

Note
If the HDMI OUT jack is connected to equipment not compatible with DOLBY DIGITAL signals, the “D-PCM” signals will be automatically output even when you select “Dolby Digital.”

• DTS (DVD VIDEO only)
Selects whether or not to output DTS signals.

On	Select this when the recorder is connected to an audio component with a built-in DTS decoder.
Off	Select this when the recorder is connected to an audio component without a built-in DTS decoder.

Note
When HDMI output is performed to equipment not compatible with DTS signals, the signals will not be output regardless of the “DTS” setting.

• 48kHz/96kHz PCM (DVD VIDEO only)
Selects the sampling frequency of the audio signal.

48kHz/ 16bit	The DVD video audio signal is converted to 48kHz/16bit and output.
96kHz/ 24bit	All signals containing 96kHz/24bit are output without conversion. However, the signals are output at 48kHz/16bit if copyright-protected signals are contained.

Notes
- “48kHz/96kHz PCM” setting has no effect when audio signals are output from the LINE OUT 2 (R-AUDIO-L) jacks. If the sampling frequency is 96kHz, signals are simply converted to 96kHz analog signals and output.
- If the HDMI OUT jack is connected to equipment not compatible with 96 kHz signals, 48kHz PCM will be automatically output even when you select “96kHz/ 24bit.”

• Audio(HDMI)
Selects the type of audio signal output from the HDMI OUT jack.

Auto	Normally, select this. Outputs the optimum audio signal that can be received by the TV based on the “Digital Out” setting (page 94).
PCM	Converts Dolby Digital or 96 kHz PCM signals to 48 kHz/16 bit PCM.

Notes
- A loud noise (or no sound) will be output if you connect the recorder to a TV that is not compatible with DOLBY DIGITAL/DTS signals and “Auto” is selected. In this case, select “PCM.”
- Set “Digital Out” to “On” when outputting compressed audio signals to an HDMI compatible TV.

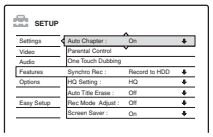
Recording and Parental Control Settings (Features)

The “Features” setup allows you to adjust recording and parental control settings.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “SETUP,” and press ENTER.

3 Select “Features,” and press ENTER.
The “Features” setup appears with the following options. The default settings are underlined.



Auto Chapter

Selects whether to automatically divide a recording (a title) into chapters during recording or dubbing.

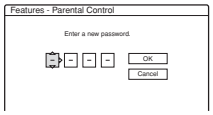
On	For the HDD or a DVD-RW (VR mode), the recorder detects changes in the picture and sound and automatically inserts chapter marks. For other recordable discs, the recorder inserts chapter marks at approximately 6 minute intervals.
Off	No chapter mark is inserted.

Notes
- The actual chapter mark interval may vary depending on the amount of information contained in the video to be recorded.
- Chapter marks are automatically inserted where the recordings start on the tape when “Auto Chapter” is set to “On” during DV dubbing to the HDD or a DVD-RW (VR mode).

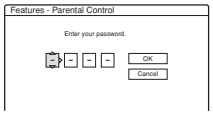
Parental Control (DVD VIDEO only)

Playback of some DVD VIDEOs can be limited according to a predetermined level, such as the age of the users. Scenes may be blocked or replaced with different scenes.

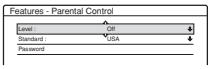
1 Select “Parental Control” in “Features,” and press ENTER.
- If you have not entered a password, the display for registering a new password appears.



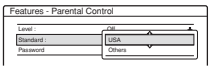
- When you have already registered a password, the display for entering the password appears.



2 Enter your four-digit password using the number buttons, then select “OK” and press ENTER.

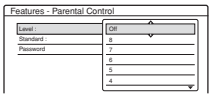


3 Select “Standard,” and press ➡ or ENTER.
The selection items for “Standard” are displayed.



4 Select a geographic area as the playback limitation level, and press ENTER.
The area is selected.
- When you select “Others,” press the number buttons to select and enter an area code in the table (page 116). Then select “OK” and press ENTER.

5 Select “Level,” and press ENTER.
The selection items for “Level” are displayed.



The lower the value, the stricter the limitation. Discs rated higher than the selected level will be restricted.

6 Select the level, and press ENTER.
The Parental Control setting is complete.

To cancel the Parental Control setting for the disc, set “Level” to “Off” in step 6.
To change the password, select “Password” in step 3, and press ENTER. When the display for registering a password appears, enter a new four-digit password using the number buttons, then select “OK” and press ENTER.

Notes
- If you forget your password, you will have to reset it by selecting “Parental Control” of “Factory Setup” in “Options” setup (page 99).
- When you play discs which do not have the Parental Control function, playback cannot be limited on this recorder.
- Depending on the disc, you may be asked to change the Parental Control level while playing the disc. In this case, enter your password, then change the level.

One Touch Dubbing

Displays the following option for the One Touch Dub function.

◆ Finalize Disc (for all recordable discs except DVD-RW in VR mode)

Selects whether or not to finalize the disc automatically following One Touch Dubbing (page 85).

Auto	Automatically finalizes the disc following One Touch Dubbing.
Manual	Allows you to finalize the disc manually.

Synchro Rec

Selects the recording destination used for Synchro-Recording (page 56).

Record to HDD	Records to the HDD.
Record to DVD	Records to DVDs.

HQ Setting (HDD only)

Selects the HQ mode used for recording on the HDD (page 49).

HQ+	Records in higher quality (approximate 15 Mbps).
HQ	Records in the standard HQ mode.

Auto Title Erase (HDD only)

On	Automatically erases old titles recorded on the HDD (page 51).
Off	Turns off the function.

Rec Mode Adjust

On	Automatically adjusts the recording mode to enable the entire program to be recorded (page 51).
Off	Turns off the function.

Screen Saver

The screen saver image appears when you do not use the recorder for more than 10 minutes while an on-screen display, such as the System Menu, is displayed on your TV screen. The screen saver image helps prevent your display device from becoming damaged (ghosting).

On	Turns on the screen saver function.
Off	Turns off the function.

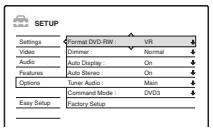
Disc and Remote Control Settings/Factory Settings (Options)

The “Options” setup allows you to set up other operational settings.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “SETUP,” and press ENTER.

3 Select “Options,” and press ENTER.
The “Options” setup appears with the following options. The default settings are underlined.



Format DVD-RW (DVD-RW only)

The recorder automatically starts formatting in VR mode or Video mode, whichever is selected below, when a new, unformatted DVD-RW is inserted.

VR	Automatically formats the disc in VR mode.
Video	Automatically formats the disc in Video mode.

Dimmer

Adjusts the lighting of the front panel display.

Normal	Bright lighting.
Power Save	Low lighting. Turns off the lighting when the power is off.

Auto Display

On	Automatically displays information on the screen when the recorder is turned on, etc.
Off	Displays information only when DISPLAY is pressed.

Auto Stereo

This function is effective only when “Tuner Audio” is set to “Main.”

On	Receives stereo programs. Normally select this.
Off	Select this to reduce noise. The sound changes to monaural.

Tuner Audio

Selects the sound to be recorded.

Main	Records only the main sound.
SAP	Records only the SAP (Second Audio Program) sound.

Note
If no SAP sound is received, the main sound is recorded regardless of the setting.

Command Mode

Changes the Command Mode of the recorder if other DVD equipment is assigned the same Command Mode. Be sure to match the Command Mode switch on the remote to the setting made here. For details, see “If you have a Sony DVD player or more than one Sony DVD recorder” on page 24.

DVD1	Select this if the default Command Mode conflicts with other DVD equipment.
DVD2	Select this if the default Command Mode conflicts with other DVD equipment.
DVD3	The default Command Mode of the recorder.

Factory Setup

Allows you to select the setup settings by group, and return them to their default settings. Note that all of your previous settings will be lost.

1 Select “Factory Setup” in “Options,” and press ➡ or ENTER.
The display for selecting a group of settings appears.

2 Select the group of settings you want to return to default from “Settings,” “Video,” “Audio,” “Features,” “Options,” “Parental Control,” and “All,” and press ➡ or ENTER.

3 Select “Start,” and press ENTER.
The selected settings return to their default settings.

4 Press ENTER when “Finish” appears.

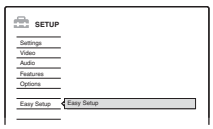
Easy Setup (Resetting the Recorder)

Select this to run the “Easy Setup” program.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “SETUP,” and press ENTER.

3 Select “Easy Setup,” and press ENTER.



4 Press ENTER.

5 Select “Start.”

6 Follow the instructions for “Easy Setup” (page 25) from step 2.

Troubleshooting

If you experience any of the following difficulties while using the recorder, use this troubleshooting guide to help remedy the problem before requesting repairs. Should any problem persist, consult your nearest Sony dealer.

Power

The power does not turn on.
➡ Check that the AC power cord is connected securely.

Picture

There is no picture.
➡ Re-connect all connecting cords securely.
➡ The connecting cords are damaged.
➡ Check the connection to your TV (page 14).
➡ Switch the input selector on your TV (such as to "VCR") so that the signal from the recorder appears on the TV screen.
➡ When playing a double-layer DVD, the video and audio may be momentarily interrupted at the point where the layers switch.

Picture noise appears.
➡ If the picture output signal from your recorder passes through your VCR to get to your TV, or if you are connected to a combination TV/VIDEO player, the copy-protection signal applied to some DVD programs could affect picture quality. If you still experience this problem even when you connect your recorder directly to your TV, try connecting your recorder to your TV's S VIDEO input.
➡ You have set the recorder to progressive format (the PROGRESSIVE indicator lights up) even though your TV cannot accept the progressive signal. In this case, press PROGRESSIVE until the PROGRESSIVE indicator turns off.
➡ Even if your TV is compatible with progressive format (480p) signals, the image may be affected when you set the recorder to progressive format. In this case, disconnect the HDMI cord from the recorder, and then press PROGRESSIVE so that the PROGRESSIVE indicator turns off and the recorder is set to normal (interlace) format.
➡ Noise may appear in the pictures recorded on the HDD, which is due to the characteristics of HDD, and is not a malfunction.
➡ When playing a double-layer DVD, the video and audio may be momentarily interrupted at the point where the layers switch.

There is no picture or the picture noise appears when connected to the HDMI OUT jack.
➡ Try the following: ①Turn the recorder off and on again. ②Turn the connected equipment off and on again. ③Disconnect and then connect the HDMI cord again.
➡ If the HDMI OUT jack is used for video output, changing the "HDMI Resolution" setting in the "Video" setup may solve the problem (page 91). Connect the TV and the recorder using a video jack other than the HDMI OUT, and switch the TV's input to the connected video input so that you can see the on-screen displays. Change the "HDMI Resolution" setting in the "Video" setup, and switch the TV's input back to HDMI. If the picture still does not appear, repeat the steps and try other options.
➡ The recorder is connected to an input device that is not HDCP compliant (page 18).

TV program reception does not fill the screen.
➡ Set the channel manually in "Tuner Preset" in "Settings" setup (page 88).
➡ Select the correct source using the INPUT SELECT button, or select a channel of any TV program using the CH +/– buttons.

TV program pictures are distorted.
➡ Reorient the TV antenna.
➡ Adjust the picture (see the TV's instruction manual).
➡ Place the recorder and TV farther apart.
➡ Place the TV and any bunched antenna cables farther apart.
➡ The RF cable is connected to the VHF/UHF OUT jack on the recorder. Connect the cable to the VHF/UHF IN jack.

The channel on the cable box/satellite receiver has been changed.
➡ The set top box controller is connected and "Set Top Box Control" is set to "On." Check the "Set Top Box Control" settings in "Settings" setup (page 90).

TV channels cannot be changed.
➡ The channel is disabled (page 88).
➡ A timer recording started, which changed the channels.

The picture from equipment connected to the recorder's input jack does not appear on the screen.
➡ If the equipment is connected to the LINE IN 1 jacks, select "L1" in the front panel display by pressing CH +/– or INPUT SELECT.
If the equipment is connected to the LINE 2 IN jacks, select "L2" in the front panel display by pressing CH +/– or INPUT SELECT.
If the equipment is connected to the LINE IN 3 jacks, select "L3" in the front panel display by pressing CH +/– or INPUT SELECT.
If the equipment is connected to the DV IN jack, (this is usually for a digital video camera connection), select "DV" in the front panel display by pressing CH +/– or INPUT SELECT.
➡ When the equipment is connected to the COMPONENT VIDEO IN jacks using a component video cord, set "Line1 Input" in "Video" setup to "Component" (page 93).
➡ When an S video cable is connected to the recorder's LINE IN 1 or 3 jack, set "Line1 Input" or "Line3 Input" in "Video" setup to "S Video" (page 93).

The playback picture or TV program from the equipment connected through the recorder is distorted.
➡ If the playback picture output from a DVD player, VCR, or tuner goes through your recorder before reaching your TV, the copy-protection signal applied to some programs could affect picture quality. Disconnect the playback equipment in question and connect it directly to your TV.

The picture does not fill the screen.
➡ Set "TV Type" in "Video" setup in accordance with the screen size of your TV (page 91).

The picture does not fill the screen, even though the picture size is set in "TV Type" in "Video" setup.
➡ The picture size of the title is fixed.

TV Guide On Screen

TV Guide On Screen does not appear.
➡ ①Even if you complete "Easy Setup," TV program listings do not appear until the recorder receives the TV Guide On Screen data. ②Turn off the recorder, but do not unplug it. ③Wait for 24 hours. It may take several days for the recorder to receive the TV Guide On Screen data for all channels. If the recorder does not receive the TV Guide On Screen data after 24 hours, select "Factory Setup" in "Options" setup and reset all of the recorder's settings (page 99). Then run "Easy Setup" from "SETUP" in the System Menu (page 99).
➡ The area and/or zip code is incorrect. Correctly set your area of residence and zip code in "Area Setup" of "Settings" setup (page 89).
➡ When the recorder is connected to a cable box, the cable box must be turned on and "Set Top Box Control" in "Settings" setup must be set to "On" (page 90) to download the TV Guide On Screen data.
➡ The cable box brand code is incorrect (page 117).
➡ The TV Guide On Screen data may not be available in some areas.
➡ The "Time Lock" function on your cable box is activated. Set this function to off.

The channel number in the program listing does not match the broadcast station.
➡ There may be more than one channel lineup for your area. To change the channel lineup, select "Change channel lineup" from "SETUP" in the Service Bar of TV Guide On Screen (page 47).

➡continued

Program listings for some channels are missing.
➡ It may take several days for the recorder to receive all of the TV Guide On Screen data.
➡ Some channels, such as satellite channels, are not displayed by the TV Guide On Screen system.
➡ All of the TV Guide On Screen data could not be received because the reception is poor.

The program listing is not up to date.
➡ The recorder was in use during the time that the TV Guide On Screen data was scheduled to be downloaded.
➡ All of the TV Guide On Screen data could not be received because the reception is poor.

Sound

There is no sound.
➡ Re-connect all connections securely.
➡ The connecting cord is damaged.
➡ The input source setting on the amplifier or the connection to the amplifier is incorrect.
➡ The recorder is in reverse play, fast-forward, slow motion, or pause mode.
➡ If the audio signal does not come through the DIGITAL OUT (OPTICAL or COAXIAL)/ HDMI OUT jacks, check the "Audio Connection" settings in "Audio" setup (page 94).

No sound is output from the HDMI OUT jack.
➡ Try the following: ①Turn the recorder off and on again. ②Turn the connected equipment off and on again. ③Disconnect and then connect the HDMI cord again.
➡ The HDMI OUT jack is connected to a DVI device (DVI jacks do not accept audio signals).
➡ The equipment connected to the HDMI OUT jack does not conform to the audio signal format, in this case set "Audio(HDMI)" of "Audio Connection" in "Audio" setup to "PCM" (page 95).

Sound distortion occurs.
➡ Set "Audio ATT" in "Audio" setup to "On" (page 93).

Sound is noisy.
➡ When playing a CD with DTS sound tracks, noise will come from the LINE OUT 1/2 R-AUDIO-L jacks (page 63).

The sound volume is low.
➡ The sound volume is low on some DVDs. The sound volume may improve if you set "Audio DRC" in "Audio" setup to "TV Mode" (page 94).
➡ Set "Audio ATT" in "Audio" setup to "Off" (page 93).
➡ One of the TVS effects is selected (page 61).

An alternate audio track cannot be recorded or played.
➡ Second Audio Program (SAP) is not available for all programs. The program you are recording does not have a second audio program.
➡ You have set "Tuner Audio" in "Options" settings to "Main" (page 98). Select "SAP" to record alternate audio programs.
➡ If you have connected an AV amplifier to the DIGITAL OUT (OPTICAL or COAXIAL) jack and want to change the audio track for a DVD-RW (VR mode) during playback, set "Dolby Digital" of "Audio Connection" in "Audio" setup to "D-PCM" (page 94).

Playback

The recorder does not play any type of disc (except HDD).
➡ The disc is upside down. Insert the disc with the labeled side facing up.
➡ The disc is not correctly inserted.
➡ Moisture has condensed inside the recorder. Remove the disc and leave the recorder turned on for about half an hour until the moisture evaporates.
➡ If the disc was recorded on another recorder, the recorder cannot play the disc if it was not finalized (page 40).

The recorder does not start playback from the beginning.
➡ Resume play was activated (page 62).
➡ You have inserted a DVD whose Title menu or DVD menu automatically appears on the TV screen when it is first inserted. Use the menu to start playback.

The recorder starts playing automatically.
➡ The DVD VIDEO features an auto playback function.

Playback stops automatically.
➡ If the DVD has an auto pause signal, the recorder stops playback at the auto pause signal.

Some functions such as Stop, Search, or Slow-motion Play cannot be performed.
➡ Depending on the DVD, you may not be able to do some of the operations above. See the instruction manual supplied with the disc.

The language for the sound track cannot be changed.
➡ Multilingual tracks are not recorded on the DVD being played.
➡ The DVD VIDEO prohibits the changing of the language for the sound track.
➡ Try changing the language using the DVD VIDEO's menu.

The subtitle language cannot be changed or turned off.
➡ Multilingual subtitles are not recorded on the DVD VIDEO.
➡ The DVD VIDEO prohibits changing of the subtitles.
➡ Try changing the subtitle using the DVD VIDEO's menu.
➡ The subtitles cannot be changed for the titles recorded on this recorder.

The angles cannot be changed.
➡ Multi-angles are not recorded on the DVD VIDEO being played.
➡ You are trying to change the angles when "" does not appear on the TV screen (page 61).
➡ The DVD VIDEO prohibits changing angles.
➡ Try changing the angle using the DVD VIDEO's menu.
➡ The angles cannot be changed for the titles recorded on this recorder.

The MP3 audio tracks do not play.
➡ The MP3 audio tracks are not recorded in a format that the recorder can play (page 70).

The JPEG image files do not play.
➡ The JPEG image files are not recorded in a format that the recorder can play (page 70).
➡ Progressive JPEG images cannot be played.

TV Pause does not work.
➡ You are recording to the HDD or the HDD is full.

Recording/Timer recording/ Editing

The channel cannot be changed from the channel you are recording.
➡ Set the TV's input source to "TV."

Recording does not start immediately after you press ● REC.
➡ Operate the recorder only after "LOAD," "FORMAT," or "INFOWRITE" disappears from the front panel display.

Nothing was recorded even though you set the timer setting correctly.
➡ There was a power failure during recording.
➡ The recorder's internal clock stopped due to a power failure that lasted for more than 1 hour. Reset the clock (page 89).
➡ The channel was hidden after the timer recording was set. (See "Customizing the TV Guide On Screen System" on page 47.)
➡ Disconnect the AC power cord from an AC outlet, and connect it again.
➡ The program contains copy protection signals that restrict copying.
➡ The timer setting overlapped another setting that was set later.
➡ There is no DVD inside the recorder.
➡ There is not enough disc space for the recording.
➡ The set top box was turned off.
➡ The set top box controller was incorrectly connected (page 15).
➡ The settings in "Set Top Box Control" in "Settings" setup have been changed (page 90).
➡ A separate recording was in the process of being made without the use of the timer (page 56).
➡ The recorder was in the process of dubbing (HDD↔DVD).
➡ The recorder was in the process of DV/Digital8 Dubbing.

Recording does not stop immediately after you press ■ REC STOP.
➡ It will take a few seconds for the recorder to input disc data before recording can stop.

➡continued

Recording does not stop after you press ■ STOP.

➡ Open the remote's cover and press ■ REC STOP.

Timer recording is not complete or did not start from the beginning.

➡ There was a power failure during recording. Should the power failure continue for more than 1 hour, reset the clock (page 89).

➡ Disc space was not enough.

Contents previously recorded were erased.

➡ Data that has been recorded on a DVD with a PC will be erased from the disc when the disc is inserted.

➡ "Auto Title Erase" in the "Features" setup is set to "On" (page 97).

Recording from the equipment with a timer

Nothing was recorded even though you set the Synchro-Recording setting correctly.

➡ You forgot to turn off the connected equipment. Turn off the connected equipment and set the recorder to Synchro-Recording standby mode (page 56).

➡ The recorder was not set to the Synchro-Recording standby mode. Press SYNCHRO REC to have the recorder stand by for recording. Make sure the SYNCHRO REC indicator lights up on the front panel (page 56).

➡ The recorder is connected to the TV output jack of the connected equipment.

Synchro-Recording does not complete.

➡ The timer setting for the connected equipment overlapped the recorder's timer setting (page 57).

➡ There was a power failure during the recording.

The recorder automatically starts recording when the satellite receiver is turned on.

➡ The Synchro Rec function was activated. Turn off the satellite receiver and cancel the Synchro Rec function (page 56).

Display

The clock has stopped.

➡ Set the clock again (page 89).

➡ The clock stopped due to a power failure that lasted for more than one hour. Reset the clock (page 89).

The clock is wrong.

➡ Set the clock again (page 89). If you cannot set the clock, wait until the clock data is received and the clock is automatically adjusted.

The TIMER REC indicator is flashing.

➡ The disc does not have enough space.

➡ Insert a recordable disc inside the recorder.

The recording mode indication is incorrect.

➡ When the recording or dubbing is less than three minutes, the recording mode indication may be displayed incorrectly. The actual recording itself is correctly made in the selected recording mode.

➡ After playing titles recorded in SLP and SEP mode, the recording mode indication may change depending on the recorded program.

The clock does not appear in the front panel display.

➡ "Dimmer" in "Options" setup is set to "Power Save" (page 98).

Remote control

The remote does not function.

➡ Batteries are weak.

➡ The remote is too far from the recorder.

➡ The remote's manufacturer code returned to the default setting when you replaced the batteries. Reset the code (page 22).

➡ Turn on the recorder.

➡ The remote is not pointed at the remote sensor on the recorder.

➡ Different command modes are set for the recorder and remote. Set the same command mode (page 24). The default command mode setting for this recorder and the supplied remote is DVD3.

➡ Set the TV/DVD switch to DVD (page 24).

Other Sony equipment responds to the remote.

➡ The same command mode is set for both the equipment and recorder. Set a different command mode for the recorder (page 24).

Others

The recorder does not operate properly.

➡ Restart the recorder. Press down I/⏻ on the recorder for more than ten seconds until "WELCOME" appears in the front panel display.

➡ When static electricity, etc., causes the recorder to operate abnormally, turn off the recorder and wait until the clock appears in the front panel display. Then, unplug the recorder and after leaving it off for a while, plug it in again.

Five numbers or letters are displayed in the front panel display.

➡ The self-diagnosis function was activated (see the table on page 106).

The disc tray does not open after you press ⏏ OPEN/CLOSE.

➡ It may take a few seconds for the disc tray to open after you have recorded or edited a DVD. This is because the recorder is adding disc data to the disc.

The disc tray does not open and "TRAY LOCKED" appears in the front panel display.

➡ Contact your Sony dealer or local authorized Sony service facility.

"RECOVERY" appears in the front panel display.

➡ The recorder's recovery function was activated when the recorder was turned on because the power was turned off or failed during recording. Leave the recorder on until "RECOVERY" disappears from the front panel display.

"HDD ERROR" appears in the front panel display.

➡ The hard disk error occurred. Press down I/⏻ on the recorder for ten seconds until "WELCOME" appears in the front panel display. If this does not resolve the problem, format the recorder's HDD by pressing down the HDD button on the recorder for more than ten seconds until "FORMAT" appears in the front panel display. Note that all the contents recorded on the HDD will be erased. If this does not fix the problem, contact your nearest Sony dealer.

"FAN ERROR" appears in the front panel display.

➡ Check that the vent on the rear of the recorder is not blocked. Then, immediately disconnect the AC power cord. Leave the recorder off for a while, then re-connect the power cord, and press I/⏻ on the recorder.

The disc tray does not open and you cannot remove the disc after you press ⏏ OPEN/CLOSE.

➡ Turn off the recorder. Once the clock appears in the front panel display, disconnect the power cord. Connect it again while pressing down ⏏ on the recorder, and release the button when the disc tray opens. Then, keep I/⏻ on the recorder pressed for about ten seconds until "WELCOME" appears in the front panel display.

"LOCKED" appears in the front panel display.

➡ The disc tray is locked. Cancel the Child Lock (page 63).

Self-diagnosis Function (When letters/numbers appear in the display)

When the self-diagnosis function is activated to prevent the recorder from malfunctioning, a five-character service number (e.g., C 13 00) with a combination of a letter and four numbers appears in the front panel display. In this case, check the following table.

First three characters of the service number	Cause and/or corrective action
C 13	There is a problem in the HDD. ➡ Contact your nearest Sony dealer or local authorized service facility. The DVD is dirty. ➡ Clean the disc with a soft cloth.
C 31	The DVD/CD is not inserted correctly. ➡ Re-insert the disc correctly.
E XX (xx is a number)	To prevent a malfunction, the recorder has performed the self-diagnosis function. ➡ Contact your nearest Sony dealer or local authorized Sony service facility and give the five-character service number. Example: E 61 10

Notes About This Recorder

On operation

- If the recorder is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the recorder. Should this occur, the recorder may not operate properly. In this case, remove the disc and leave the recorder turned on for about half an hour until the moisture evaporates.
- When you move the recorder, take out any discs. If you don't, the disc may be damaged.

On adjusting volume

Do not turn up the volume while listening to a section with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level section is played.

On cleaning

Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

About repairing the hard disk drive

- It may be necessary to access data stored on the hard disk for testing purposes; there is no intention to copy or store the data, titles or any other information.
- If replacement or initialization (format) is required, the hard disk will be formatted at our discretion. In this case, please note that all of the contents recorded there will be erased (including any data found to violate copyright law).

On cleaning discs

Do not use a commercially available cleaning disc. It may cause a malfunction.

Notes about the discs

- To keep the disc clean, handle the disc by its edge. Do not touch the surface. Dust, fingerprints, or scratches on the disc may cause it to malfunction.

- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.
- Clean the disc with a cleaning cloth. Wipe the disc from the center out.

- Do not use solvents such as benzine, thinner, commercially available disc/lens cleaners, or anti static spray intended for vinyl LPs.
- Do not use the following discs.
  – A disc that has a non-standard shape (e.g., card, heart).
  – A disc with a label or sticker on it.
  – A disc that has cellophane tape or sticker adhesive on it.

Specifications

System

Laser: Semiconductor laser

Channel coverage:
NTSC
VHF: 2 to 13/UHF: 14 to 69/CATV: A-8 to A-1, A to W, W+1 to W+84

Video reception: Frequency synthesizer system

Audio reception: Split carrier system

Antenna: 75-ohm antenna terminal for VHF/UHF

Timer: Clock: Quartz locked/Timer indication: 12-hour cycle (digital)/Power back-up duration: 1 hour

Video recording format: MPEG Video

Audio recording format/applicable bit rate: Dolby Digital 2 ch/256 kbps

Inputs and outputs

LINE OUT 1/2

(AUDIO): Phono jack/2 Vrms/10 kilohms

(VIDEO): Phono jack/1.0 Vp-p

(S VIDEO): 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p

LINE IN 1/2/3

(AUDIO): Phono jack/2 Vrms/more than 22 kilohms

(VIDEO): Phono jack/1.0 Vp-p

(S VIDEO): 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p

DV IN: 4-pin/i.LINK S100

DIGITAL OUT (OPTICAL): Optical output jack/ –18 dBm (wave length: 660 nm)

DIGITAL OUT (COAXIAL): Phono jack/ 0.5 Vp-p/75 ohms

COMPONENT VIDEO OUT (Y, P_B, P_R):
Phono jack/Y: 1.0 Vp-p/P_B, P_R: interlace*=0.648 Vp-p, progressive or interlace**=0.7 Vp-p

COMPONENT VIDEO IN (Y, P_B, P_R):
Phono jack/Y: 1.0 Vp-p/P_B, P_R: interlace*=0.648 Vp-p, progressive or interlace**=0.7 Vp-p

* "Y/Pb/Pr Out Black Level" is "On"

** "Y/Pb/Pr Out Black Level" is "Off"

SET TOP BOX CONTROL:
Mini jack

HDMI OUT:
Type A (19-pin)

➡continued

General

Power requirements: 120 V AC, 60 Hz
Power consumption: 57 W
Dimensions (approx.): 430 × 75 × 328 mm (17 × 3 × 13 in.) (width/height/depth) incl. projecting parts
Hard disk drive capacity: 160 GB
Mass (approx.): 5.3 kg (11.68 lb)
Operating temperature:
5°C to 35°C (41°F to 95°F)
Operating humidity: 25% to 80%
Supplied accessories:
Audio/video cord (1)
Power cord (1)
Antenna cable (1)
Set top box controller (1)
Remote commander (remote) (1)
Size AA (R6) batteries (2)

Specifications and design are subject to change without notice.

About i.LINK

The DV IN jack on this recorder is an i.LINK-compliant DV IN jack. This section describes the i.LINK standard and its features.

What is i.LINK?

i.LINK is a digital serial interface for handling digital video, digital audio and other data in two directions between equipment having the i.LINK jack, and for controlling other equipment. i.LINK-compatible equipment can be connected by a single i.LINK cable. Possible applications are operations and data transactions with various digital AV equipment. When two or more i.LINK-compatible equipment are connected to this recorder in a daisy chain, operations and data transactions are possible with not only the equipment that this recorder is connected to but also with other devices via the directly connected equipment.
Note, however, that the method of operation sometimes varies according to the characteristics and specifications of the equipment to be connected, and that operations and data transactions are sometimes not possible on some connected equipment.

Note

Normally, only one piece of equipment can be connected to this recorder by the i.LINK cable (DV connecting cable). When connecting this recorder to i.LINK-compatible equipment having two or more i.LINK jacks (DV jacks), see the instruction manual of the equipment to be connected.

About the name "i.LINK"

i.LINK is a more familiar term for IEEE 1394 data transport bus proposed by SONY, and is a trademark approved by many corporations. IEEE 1394 is an international standard standardized by the Institute of Electrical and Electronics Engineers.

i.LINK baud rate

i.LINK's maximum baud rate varies according to the equipment. Three maximum baud rates are defined:
S100 (approx. 100 Mbps*)
S200 (approx. 200 Mbps)
S400 (approx. 400 Mbps)

The baud rate is listed under "Specifications" in the instruction manual of each equipment. It is also indicated near the i.LINK jack on some equipment.
The maximum baud rate of equipment on which it is not indicated such as this unit is "S100."
When units are connected to equipment having a different maximum baud rate, the baud rate sometimes differs from the indicated baud rate.

* What is Mbps?
Mbps stands for megabits per second, or the amount of data that can be sent or received in one second. For example, a baud rate of 100 Mbps means that 100 megabits of data can be sent in one second.

i.LINK functions on this recorder

For details on how to dub when this recorder is connected to other video equipment having DV jacks, see page 84.
The DV jack on this recorder can only input DVC-SD signals. It cannot output signals. The DV jack will not accept MICRO MV signals from equipment such as a MICRO MV digital video camera with an i.LINK jack.
For further precautions, see the notes on page 84.
For details on precautions when connecting this recorder, also see the instruction manuals for the equipment to be connected.

Required i.LINK cable

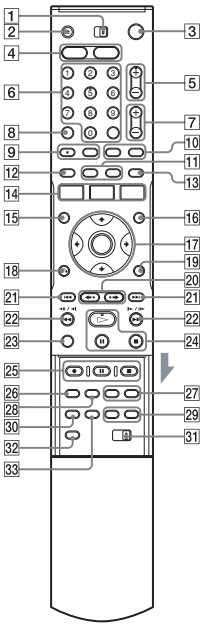
Use the Sony i.LINK 4-pin-to-4-pin cable (during DV dubbing).

i.LINK and , are trademarks.

Guide to Parts and Controls

For more information, see the pages in parentheses.

Remote



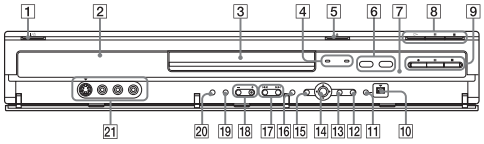
1 TV/DVD switch (22)
2 ⏏ OPEN/CLOSE button (31)
3 I/⏻ (on/standby) button (25)
4 HDD button (33)
DVD button (31)
5 CH (channel) +/– buttons (33)
PAGE +/– buttons (44)
The + button has a tactile dot*.
6 Number buttons (52, 67)
SET button (67)
The number 5 button has a tactile dot*.
7 VOL (volume) +/– buttons (22)
8 CLEAR button (67)
9 AUDIO button (61)
SUBTITLE button (61)
The AUDIO button has a tactile dot*.
10 INPUT SELECT button (56, 84)
TV/VIDEO button (22)
11 SCHEDULE button (55)
DISPLAY button (36)
12 TIMER button (52)
13 ⓘ (info) button (43, 47)
14 SYSTEM MENU button (86, 88)
TITLE LIST button (34, 59, 68, 73)
TV GUIDE button (42)
15 TOP MENU button (63)
16 MENU button (44, 63)
17 ←/↑/↓/→/ENTER button (25)
18 ↩ RETURN button (25)
EXIT button (44)
19 TOOLS button (31)
20 ⏮ REPLAY (instant replay)/ADVANCE (instant advance) ⏭ buttons (34, 68)
21 ⏮ PREV (previous)/NEXT ⏭ buttons (61)

22 ◀◀◀II◀I/I▶II▶▶▶ (search) buttons (61)
23 VISUAL SEARCH button (67)
24 ▷ PLAY button (59)
❚❚ PAUSE button (61)
■ STOP button (59)
The ▷ PLAY button has a tactile dot*.
25 ● REC button (33)
❚❚ REC PAUSE button (33)
■ REC STOP button (33)
26 REC MODE button (33)
27 CHAPTER MARK/CHAPTER MARK ERASE buttons (76)
28 SYNCHRO REC button (56)
29 ANGLE button (61)
SUR (surround) button (61)
30 WIDE MODE button (22)
31 COMMAND MODE switch (DVD 1,2,3) (24)
32 PROGRESSIVE button (19)
33 TIME/TEXT button (37)

* Use the tactile dot as a reference when operating the recorder.

➡continued

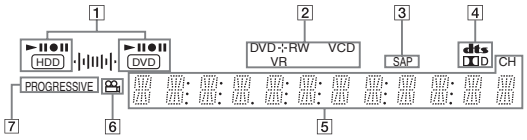
Front panel



1 I/⏻ (on/standby) button (25)
2 Front panel display (37, 113)
3 Disc tray (31)
4 TIMER REC indicator (50)
SYNCHRO REC indicator (56)
5 ⏏ (open/close) button (31)
6 HDD button/indicator (33)
DVD button/indicator (31)
7 (remote sensor) (22)
8 ▷ (play) button (59)
❚❚ (pause) button (61)
■ (stop) button (59)
9 ● REC button (33)
❚❚ REC PAUSE button (33)
■ REC STOP button (33)
10 DV IN jack (84)
11 ONE-TOUCH DUB button (85)
12 SYSTEM MENU button (86, 88)
13 TOOLS button (31)
14 ←/↑/↓/→/ENTER button (25)
15 RETURN button (25)
16 TV GUIDE button (42)
17 ⏮/⏭ (previous/next) buttons (61)
18 CHANNEL +/– buttons (33)
The + button has a tactile dot*.
19 INPUT SELECT button (56, 84)
20 REC MODE button (33)
21 LINE 2 IN (S VIDEO/VIDEO/L(MONO) AUDIO R) jacks (29)

* Use the tactile dot as a reference when operating the recorder.

Front panel display

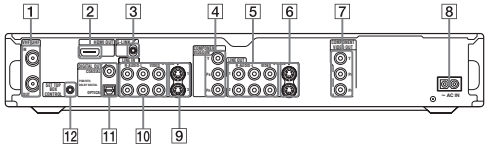


1 HDD/DVD indicators
Displays the selected media and the playing/recording/dubbing status.
2 Disc type*/recording format
3 SAP (Second Audio Program) indicator (50)
4 Audio signal indicators (36)
5 Displays the following (37):
• Playing time/remaining time
• Current title/chapter/track/index number
• Recording time/recording mode
• Clock
• Channel
6 (angle) indicator (61)
7 PROGRESSIVE indicator (19)

* Displays DATA CDs as "CD."

Hint
You can turn off the front panel display when the recorder is turned off by setting "Dimmer" to "Power Save" in "Options" setup (page 98).

Rear panel



1 VHF/UHF IN/OUT jacks (16, 17)
2 HDMI OUT (high-definition multimedia interface out) jack (18)
3 G-LINK jack (for service use only)
4 COMPONENT VIDEO IN (Y, P_B, P_R) jacks (15)
5 LINE OUT 1/2 (R-AUDIO-L/VIDEO) jacks (18, 20)
6 LINE OUT 1/2 (S VIDEO) jack (18)
7 COMPONENT VIDEO OUT (Y, P_B, P_R) jacks (18)
8 AC IN terminal (21)
9 LINE IN 1/3 (S VIDEO) jack (28)
10 LINE IN 1/3 (R-AUDIO-L/VIDEO) jacks (28)
11 DIGITAL OUT (COAXIAL/OPTICAL) jacks (20)
12 SET TOP BOX CONTROL jack (15, 16)

Glossary

Chapter (page 67)
Sections of a picture or a music feature that are smaller than titles. A title is composed of several chapters. Depending on the disc, no chapters may be recorded.

Copy protection signals (page 50)
Copy restriction set by copyright owners, etc. These signals are included in some software or TV programs and restrict recording on this recorder.

Dolby Digital (page 94)
Digital audio compression technology developed by Dolby Laboratories. This technology conforms to multi-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. Dolby Digital provides the same discrete channels of high quality digital audio found in "Dolby Digital" theater surround sound systems.
Good channel separation is realized because all of the channel data is recorded discretely, and little deterioration occurs because all channel data processing is digital.

DTS (page 95)
Digital audio compression technology by Digital Theater Systems, Inc. This technology conforms to multi-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. DTS provides the same discrete channels of high quality digital audio.
Good channel separation is realized because all of the channel data is recorded discretely, and little deterioration occurs because all channel data processing is digital.

DVD+R (page 10)
A DVD+R (read "plus R") is a recordable disc that is the same size as a DVD VIDEO. Contents can be recorded only once to a DVD+R, and will have the same format as a DVD VIDEO.

DVD+RW (page 10)
A DVD+RW (read "plus RW") is a recordable and rewritable disc. DVD+RWs use a recording format that is comparable to the DVD VIDEO format.

DVD-R (page 10)
A DVD-R is a recordable disc that is the same size as a DVD VIDEO. Contents can be recorded only once to a DVD-R, and will have the same format as a DVD VIDEO.

DVD-RW (page 10)
A DVD-RW is a recordable and rewritable disc that is the same size as a DVD VIDEO. The DVD-RW has two different modes: VR mode and Video mode. DVDs created in Video mode have the same format as a DVD VIDEO, while discs created in VR (Video Recording) mode allow the contents to be programmed or edited.

DVD VIDEO (page 12)
A disc that contains up to eight hours of moving pictures on a disc the same diameter as a CD. The data capacity of a single-layer and single-sided DVD is 4.7 GB (Giga Byte), which is 7 times that of a CD. The data capacity of a double-layer and single-sided DVD is 8.5 GB, a single-layer and double-sided DVD is 9.4 GB, and double-layer and double-sided DVD is 17 GB. The picture data uses the MPEG 2 format, which is a worldwide standard of digital compression technology. The picture data is compressed to about 1/40 (average) of its original size. The DVD also uses a variable rate coding technology that changes the data to be allocated according to the status of the picture. Audio information is recorded in a multi-channel format, such as Dolby Digital, allowing you to enjoy a more real audio presence.
Furthermore, various advanced functions such as the multi-angle, multilingual, and Parental Control functions are provided on the DVD.

Hard disk drive (page 3)
A hard disk drive is a whole mechanical system that consists of discs and drive. Discs are flat, circular, rigid plates coated with a thin magnetic media. Magnetic heads record data on the rapidly spinning discs, and this enables the speedy and efficient reading and writing of data.

HDMI (High-Definition Multimedia Interface) (page 20)
HDMI is an interface that supports both video and audio on a single digital connection. The HDMI connection carries standard to high definition video signals and multi-channel audio signals to AV components such as HDMI equipped TVs, in digital form without degradation.
The HDMI specification supports HDCP (High-bandwidth Digital Contents Protection), a copy protection technology that incorporates coding technology for digital video signals.

Interlace format (page 19)
Interlace format shows every other line of an image as a single "field" and is the standard method for displaying images on television. The even number field shows the even numbered lines of an image, and the odd numbered field shows the odd numbered lines of an image.

Original (page 72)
Titles actually recorded on a HDD/DVD-RW (VR mode). Erasing original titles frees up disc space.

Playlist (page 72)
Playback information created from the actual recordings on a HDD/DVD-RW (VR mode). A Playlist leaves the original titles as they are, and contains only the information needed to control playback. A Playlist title takes up very little disc space.

Progressive format (page 19)
Compared to the Interlace format that alternately shows every other line of an image (field) to create one frame, the Progressive format shows the entire image at once as a single frame. This means that while the Interlace format can show 30 frames/60 fields in one second, the Progressive format can show 60 frames in one second. The overall picture quality increases and still images, text, and horizontal lines appear sharper.

Title (page 67)
The longest section of a picture or music feature on a DVD, movie, etc., in video software, or the entire album in audio software.

Track (page 67)
Sections of a music feature on a CD/VIDEO CD (the length of a song).

Language Code List

For details, see page 90.

The language spellings conform to the ISO 639: 1988 (E/F) standard.

Code	Language	Code	Language	Code	Language	Code	Language
1027	Afar	1183	Irish	1347	Maori	1507	Samoan
1028	Abkhazian	1186	Scots Gaelic	1349	Macedonian	1508	Shona
1032	Afrikaans	1194	Galician	1350	Malayalam	1509	Somali
1039	Amharic	1196	Guarani	1352	Mongolian	1511	Albanian
1044	Arabic	1203	Gujarati	1353	Moldavian	1512	Serbian
1045	Assamese	1209	Hausa	1356	Marathi	1513	Siswati
1051	Aymara	1217	Hindi	1357	Malay	1514	Sesotho
1052	Azerbaijani	1226	Croatian	1358	Maltese	1515	Sundanese
1053	Bashkir	1229	Hungarian	1363	Burmese	1516	Swedish
1057	Byelorussian	1233	Armenian	1365	Nauru	1517	Swahili
1059	Bulgarian	1235	Interlingua	1369	Nepali	1521	Tamil
1060	Bihari	1239	Interlingue	1376	Dutch	1525	Telugu
1061	Bislama	1245	Inupiak	1379	Norwegian	1527	Tajik
1066	Bengali; Bangla	1248	Indonesian	1393	Occitan	1528	Thai
		1253	Icelandic	1403	(Afan)Oromo	1529	Tigrinya
1067	Tibetan	1254	Italian	1408	Oriya	1531	Turkmen
1070	Breton	1257	Hebrew	1417	Punjabi	1532	Tagalog
1079	Catalan	1261	Japanese	1428	Polish	1534	Setswana
1093	Corsican	1269	Yiddish	1435	Pashto; Pushto	1535	Tonga
1097	Czech	1283	Javanese			1538	Turkish
1103	Welsh	1287	Georgian	1436	Portuguese	1539	Tsonga
1105	Danish	1297	Kazakh	1463	Quechua	1540	Tatar
1109	German	1298	Greenlandic	1481	Rhaeto-Romance	1543	Twi
1130	Bhutani	1299	Cambodian			1557	Ukrainian
1142	Greek	1300	Kannada	1482	Kirundi	1564	Urdu
1144	English	1301	Korean	1483	Romanian	1572	Uzbek
1145	Esperanto	1305	Kashmiri	1489	Russian	1581	Vietnamese
1149	Spanish	1307	Kurdish	1491	Kinyarwanda	1587	Volapük
1150	Estonian	1311	Kirghiz	1495	Sanskrit	1613	Wolof
1151	Basque	1313	Latin	1498	Sindhi	1632	Xhosa
1157	Persian	1326	Lingala	1501	Sangho	1665	Yoruba
1165	Finnish	1327	Laothian	1502	Serbo-Croatian	1684	Chinese
1166	Fiji	1332	Lithuanian			1697	Zulu
1171	Faroese	1334	Latvian; Lettish	1503	Singhalese		
1174	French			1505	Slovak		
1181	Frisian	1345	Malagasy	1506	Slovenian	1703	Not specified

Area Code

For details, see page 96.

Code	Area	Code	Area	Code	Area	Code	Area
2044	Argentina	2165	Finland	2362	Mexico	2149	Spain
2047	Australia	2174	France	2376	Netherlands	2499	Sweden
2046	Austria	2109	Germany	2390	New Zealand	2086	Switzerland
2057	Belgium	2248	India	2379	Norway	2528	Thailand
2070	Brazil	2238	Indonesia	2427	Pakistan	2184	United Kingdom
2079	Canada	2254	Italy	2424	Philippines		
2090	Chile	2276	Japan	2436	Portugal		
2092	China	2304	Korea	2489	Russia		
2115	Denmark	2363	Malaysia	2501	Singapore		

Cable Box/Satellite Receiver Brand Code

If more than one code number is listed, try entering them one at a time until you find the one that works with your cable box/satellite receiver. Note that TV Guide On Screen data cannot be received through a satellite receiver.

Cable box brand	Code number
3M	0033
ABC	0003, 0011, 0017, 0008, 0014, 0001, 0013, 0206, 0047, 0237, 0033
Accuphase	0003, 0013, 0047, 0001, 0011, 0017, 0014, 0206
Acorn	1102, 0237
Action	0237
Active	0237, 1102
Aim	0015
Allegro	0315, 0153
Amark	0008, 0277, 0144, 0056
American	0060
Americast	0899
Antronix	0207, 0022
Anvision	0211, 0111
Apache	0770
Arbatron	0014, 0011, 0003, 0476
Archer	0153, 0022, 0207, 0039, 0797, 0237, 0260
ASE	1080
Auna	1269
BBT	0267
BCC	0276
Belcor	0056, 0022
Bell & Howell	0014
Bell Atlantic	0641
Bell South	0899
Bestlink	0303
Betavue	0022
British Telecom	0003
BVS	0641
Cable Healthcare	0769, 0058
Cable Star	0056
Cabletenna	0022, 0039
Cableview	0022
Century	0153, 0618, 0008, 0315
Citation	0017
Citizen	0153, 0315, 0078, 0242
Clearmaster	0883
ClearMax	0883, 1247
Colour Voice	0031, 0025
Comband	0233, 0232
Comtec	0274
Comtronics	0060, 0040
Comtronics Eagle	0040, 0060
Contec	0019
Coolmax	0883
Curtis Mathes	0015, 0242
Dae Ryung Eagle	0008
Daeryung	0008, 0877, 0477, 0277, 1877
Diamond	0035
Digeo	1476
Digi	0637
Director	0476
Dumont	0637
Eagle Comtronics	0060, 0028
Eastern	0002, 0274, 0418
Electricord	0078
Emerson	0797, 0303, 0015, 0014
Everquest	0040, 0015
Focus	0400
Fosgate	0276
Funai	0248, 0019
FutureVision	0649
Garrard	0153
Gateway	0764

➡continued

Cable box brand	Code number
GC Electronics	0207, 0056, 0330, 0016, 0040, 0077, 0030
GE	0232, 0233, 0144, 0021
Gemini	0015, 0070, 0057, 0242, 0014, 0797, 0013, 0400
General Instrument	0476, 0011, 0014, 0098, 0810, 0024, 0003, 0015, 0276
GHZ	0078
Gibraltar	0003
Global	1327
GMI	0069, 0057, 0015, 0797
GoldStar	0144, 0040
Goodmind	0770, 0797
Gradiente	1136
Hamlin	0020, 0009, 0034, 0259, 0015, 0273, 0206
Healthway Interactive	0058, 1020, 1015, 0769
Hitachi	0011, 0154, 0009, 0008, 0003, 0033, 0014, 0255
Houston Tracker	0011
Hwalin	0303
IBM	0670
IEEC	1018
Interbuy	0274
Jasco	0315, 0153, 0015
Jebsee	0014, 0400
Jerrold	0003, 0014, 0276, 0011, 0012, 0020, 0024, 0015, 0047, 0098, 0476, 0031, 0029, 0111, 0032, 0054, 0810, 0028
Kuang Yu	0024
Leon	0069, 0015
LG	0040, 0144
Linsay	0440
Macom	0033
Maestro	0812
Magnavox	0797, 0027, 0032, 0334, 0069
Millennium	0618, 0153
Memorex	0000
Mitsubishi	0003
Motorola	0476, 0276, 1476, 0810, 1376, 1254, 0400, 1106
Movie Time	0156, 0078, 0063, 0203
MS	0069, 0015, 1018, 0303
MultiVision	0012
Myrio	1117
NET	0274
Next Level	0764, 1316, 1315, 1314
Nexus	0770
Northcoast	0671, 0314
Nova Vision	0277, 0008
Novabeam	0277
Novaplex	0618, 0277, 0017, 0008
NSC	0156, 0070, 0203, 0063, 0400, 0012, 0618, 0022, 0637, 0010, 0044
Oak	0019, 0303, 0248, 0017
Omega	0015
Omniview	0371
Optimus	0021
Pace	0008, 0237, 0277, 0477, 0877, 1877
Pacific Bell	0843
Panasonic	0107, 0021, 0144, 0008, 0124, 0307, 0000, 0040
Panther	0637
Paragon	0000, 0525, 0008
Penney	0637, 0000
Philips	0025, 0031, 0290, 0027, 0030, 0153, 0060, 0242, 0028, 0334, 0211, 0029, 0259, 0307, 0652, 0013, 0069, 0649, 0255, 0305, 0032, 0111, 0317
Pioneer	0144, 0023, 0533, 1877, 0877, 0260
Popular Mechanics	0400
Prelude	0770
Prism	0012, 0013, 0059

Cable box brand	Code number
Protelcon	0786
Pulsar	0000, 0040
Quasar	0000
Quest	0144, 0020
R Line	0040
RadioShack	0883, 0015, 0315, 0303, 0797
Rampage	0255
Ranger	1247
RCA	0021, 0060, 0797, 0047, 1256, 0843
Realistic	0207, 0153
Recoton	0153, 0400
Regal	0259, 0020, 0273, 0279, 0276
Regency	0002, 0020, 0682
Rembrandt	0070, 0153, 0040, 0022, 0011
RK	0304, 0479
Runco	0000
Samsung	0040, 0144, 0023, 0003, 0070, 0000
Sasktel	1737
Scientific Atlanta	0008, 0277, 0017, 0006, 0237, 0025, 0477, 0207, 0877, 0003, 0012, 0000, 0021, 1877
Seam	0510
Sears	0510
Sejin	1265
Sigma	0019
Signal	0040, 0015, 0011, 0035
Signature	0011
SkyCable	0112
Skygiant	1091
SL Marx	0040
Sony	1006, 1506, 1606
Spectradyne	0769, 0058
Spectravision	0058
Sprucer	0021, 0307, 0010, 0144
Standard Components	0203, 0096, 0155
Starcom	0003, 0015, 0047, 0014, 0098, 0305
Stargate	0015, 0040, 0770, 0865, 0797, 0305, 0014
Starquest	0015
StarSight	0542, 0422
Stealth	0274
Stellar One	0807
Storm	1018, 0637
Suena Madritel	1230
Supercable	0276
Supermax	0883
Sylvania	0001
Tandy	0258
Tatung	0097
Teac	1018
Technics	0029
Teknika	0146
Teleavia	0040
TeleCaption	0221
Teleview	0063, 0040
Texscan	0001, 0096, 0010
TFC	0310
Thomson	1256
Timeless	0418, 0274, 0040
Tocom	0012, 0013, 0029, 0019, 0059, 0017
Torx	0003
Toshiba	0000
Trans PX	0303, 0276, 0153, 0315
Trinity	1248
Tristar	0883
TS	0255, 0024, 1018, 0003, 0303
Tusa	0015
TV COMM	0035, 0019
TV Guide	1476
TV86	0063, 0040

➡continued

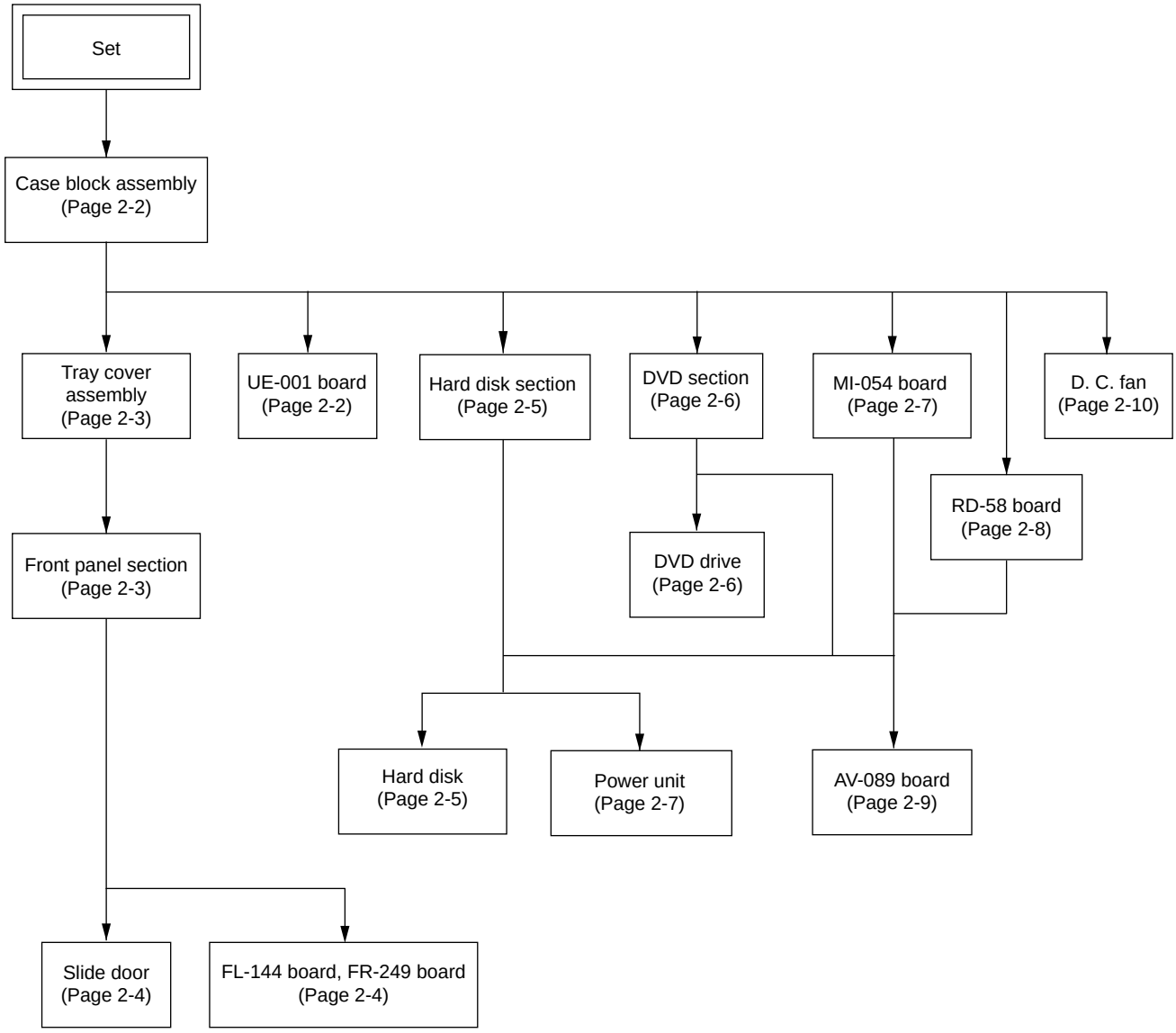
Cable box brand	Code number
Uniden	0022
Unika	0207, 0153, 0022
United Cable	0003, 0014, 0011, 0276
Universal	0191, 0078, 0207, 0056, 0022, 0039, 0153, 0077, 0322, 0315
US Electronics	0276, 0008, 0003, 0017
V2	0883
Videoway	0250, 0000
VideoWorks	0124
Vidtech	0244
Viewmaster	0883, 0770
Viewstar	0258, 0289, 0060, 0063, 0211, 0027, 0111, 0030, 0121
Vision	0883
Visionetics	1264
Vortex View	0883
WaveMaster	0565
Wiso	0078
Zenith	0000, 0525, 0054, 0017, 0039, 0153, 0060, 0315, 0191, 0899
Zentek	0400

Satellite receiver brand	Code number
AlphaStar	0772
Atlantic Telephone	1333
Bell ExpressVu	0775
Century	0856
Chaparral	0216
Crossdigital	1109
DirecTV	0749, 0566, 0392, 1749, 0099, 1109, 1076, 1442, 1856, 0247, 1142, 1639, 0724, 0639, 0819
Dish Network System	0775, 1005, 1170
Dishpro	0775, 1005
Echostar	0775, 1170, 1005
Expressvu	0775
Galaxis	0863
GE	0566
General Instrument	0361, 0869, 0627
GOI	0775
Gradiente	0856
Hitachi	0819, 0749
Houston Tracker	0775
HTS	0775
Hughes Network Systems	0749, 1749, 1442, 1142
Humax	1176, 1359, 1048, 0863, 0283
Innova	0099
Jerrold	0361, 0036, 0627
JVC	0775, 1170
Magnavox	0722, 0724
McIntosh	0869
Memorex	0724
Mitsubishi	0749
Motorola	0869
NEC	1270
Netsat	0099
Next Level	0869
Optimus	0724
Panasonic	0247, 0701

Satellite receiver brand	Code number
Paysat	0724
Philips	1076, 0099, 1142, 0724, 0722, 0749, 1442, 1749, 0856, 0775
Primestar	0361, 0627, 0869
Proscan	0392, 0566
QNS	1367
RadioShack	0869
RCA	0566, 0392, 0143, 0855
Samsung	1109, 1276
Sky	0856, 0099, 1856
Sony	0639, 1639
Star Choice	0869
Star Trak	0869, 0772
Thomson	0566, 0392
Tivo	1142, 1442
Toshiba	0790, 0749, 1749, 1285
UEC	1333, 1358
Uniden	0724, 0722
Video Cipher II Plus	0361
Zenith	0856, 1856

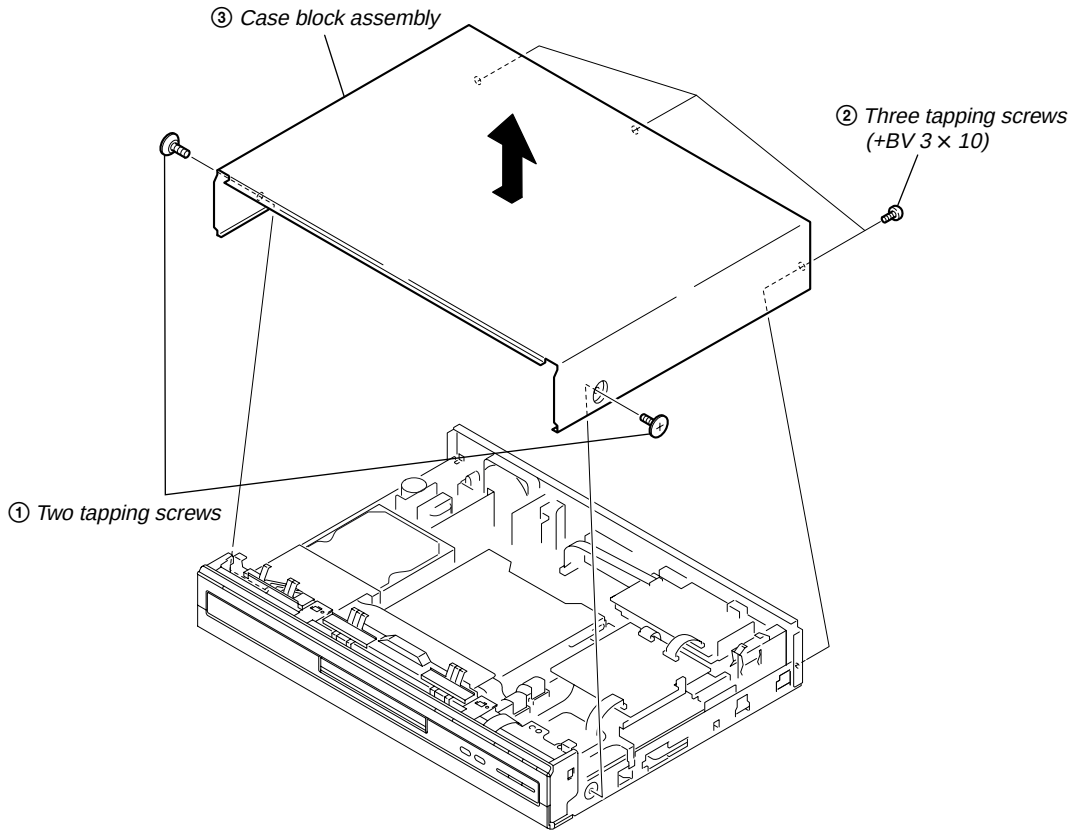
SECTION 2
DISASSEMBLY

NOTE: The following flow chart shows the disassembly procedure.

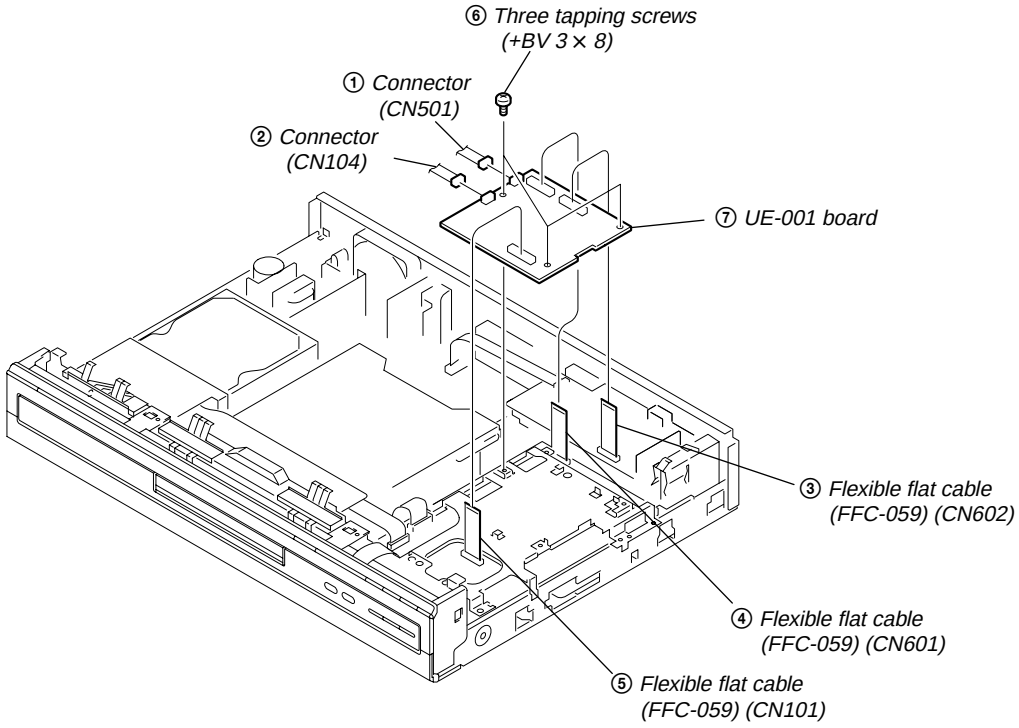

Set
Case block assembly (Page 2-2)
Tray cover assembly (Page 2-3)
UE-001 board (Page 2-2)
Hard disk section (Page 2-5)
DVD section (Page 2-6)
MI-054 board (Page 2-7)
D. C. fan (Page 2-10)
RD-58 board (Page 2-8)
Front panel section (Page 2-3)
DVD drive (Page 2-6)
Hard disk (Page 2-5)
Power unit (Page 2-7)
AV-089 board (Page 2-9)
Slide door (Page 2-4)
FL-144 board, FR-249 board (Page 2-4)

NOTE: Follow the disassembly procedure in the numerical order given.

2-1. CASE BLOCK ASSEMBLY



2-2. UE-001 BOARD



2-3. TRAY COVER ASSEMBLY

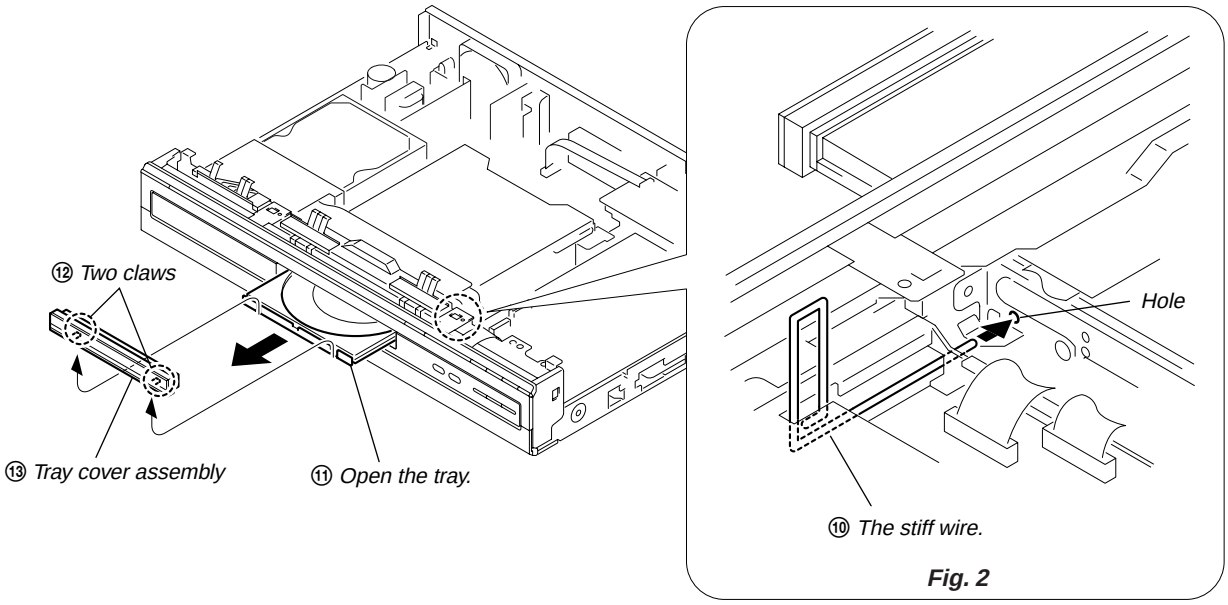
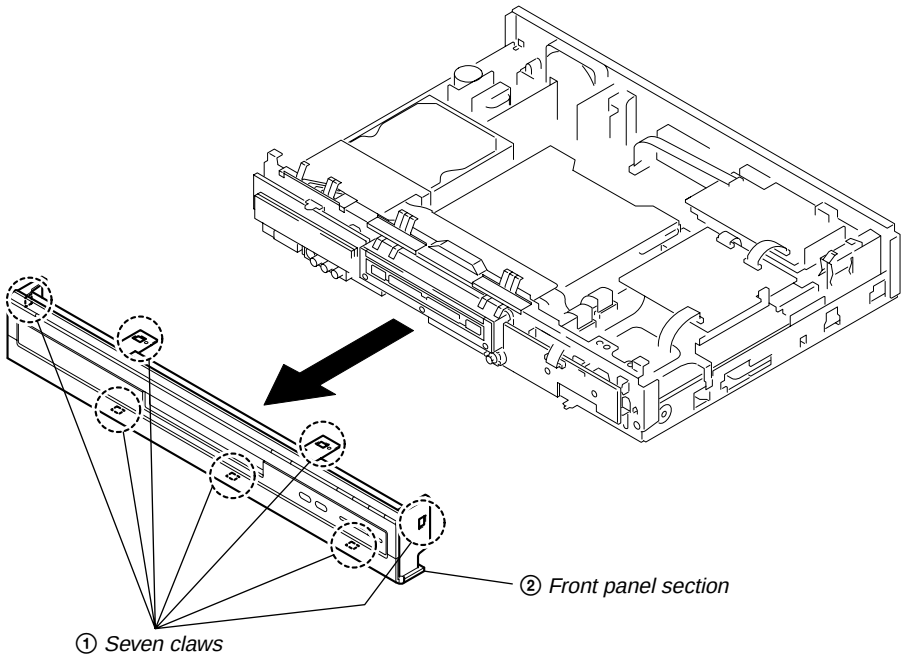
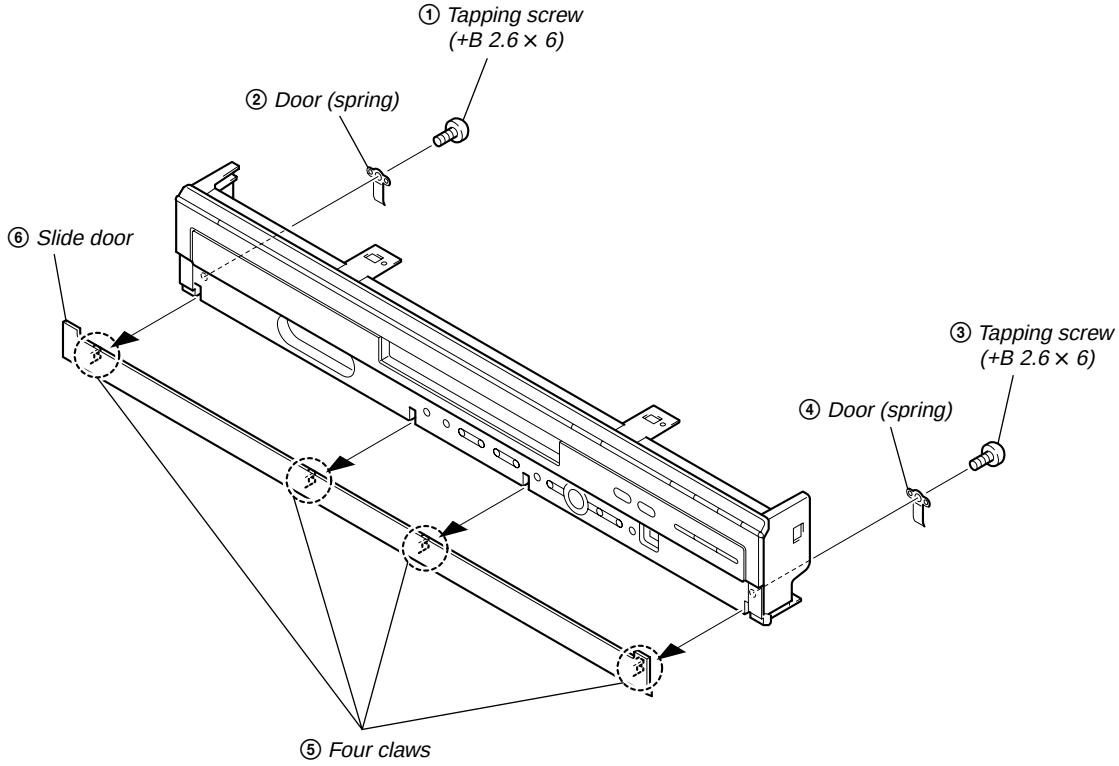


Fig. 2

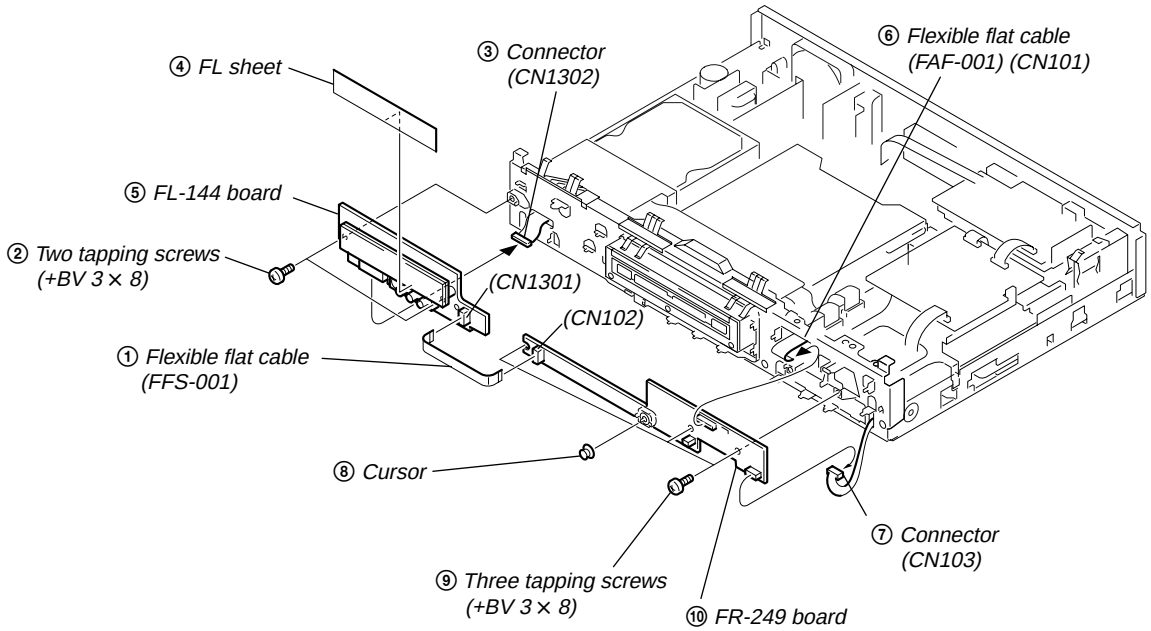
2-4. FRONT PANEL SECTION



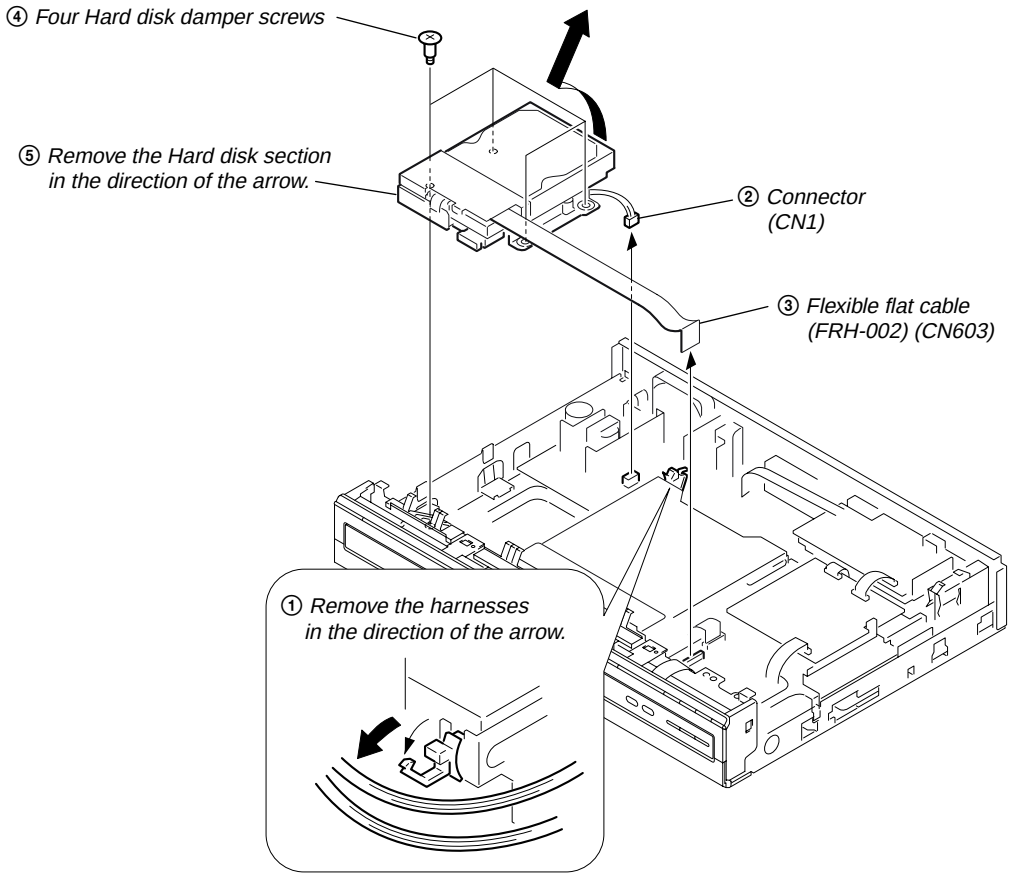
2-5. SLIDE DOOR



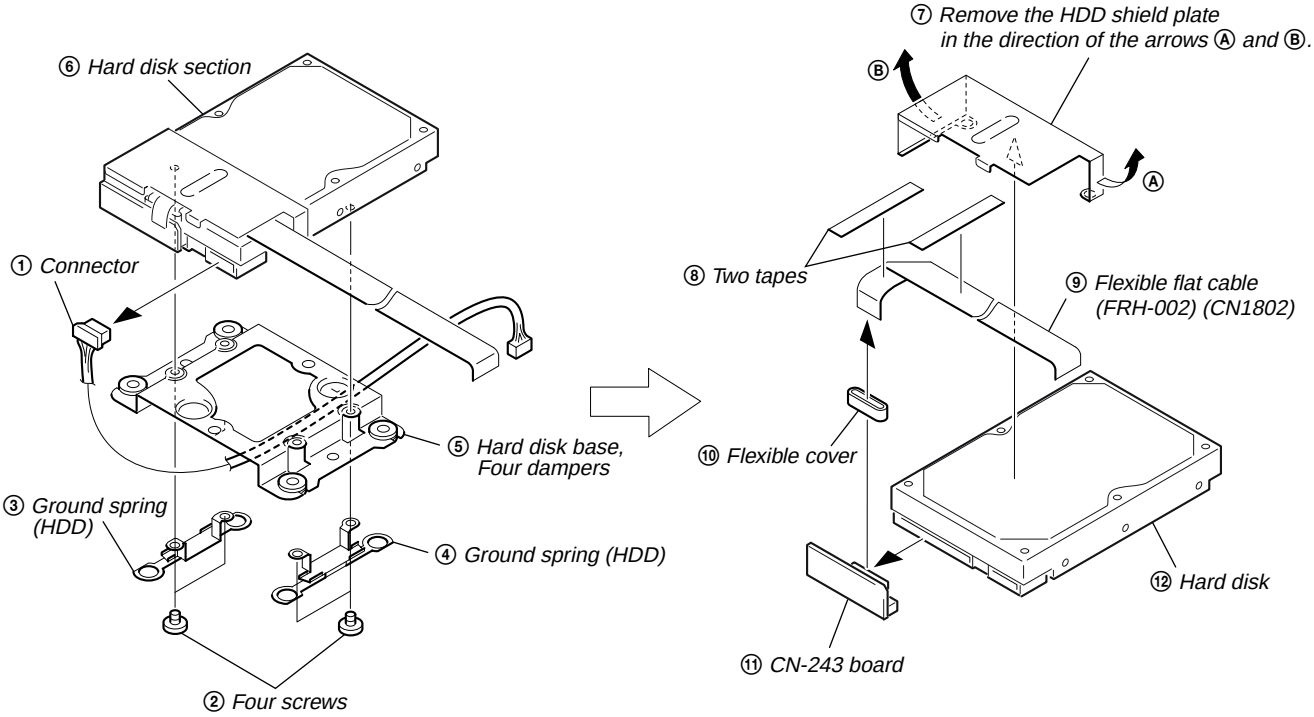
2-6. FL-144 BOARD, FR-249 BOARD



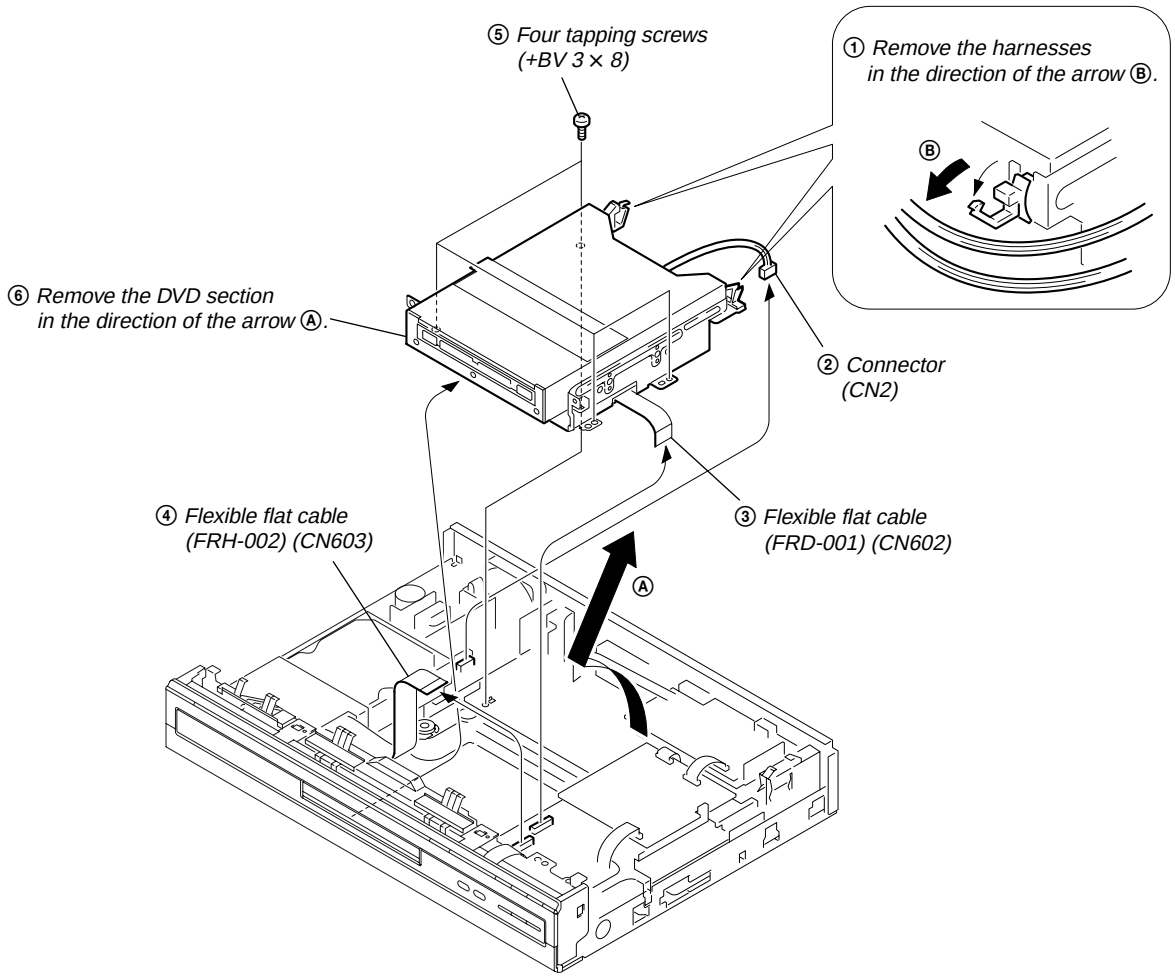
2-7. HARD DISK SECTION


④ Four Hard disk damper screws
⑤ Remove the Hard disk section in the direction of the arrow.
② Connector (CN1)
③ Flexible flat cable (FRH-002) (CN603)
① Remove the harnesses in the direction of the arrow.

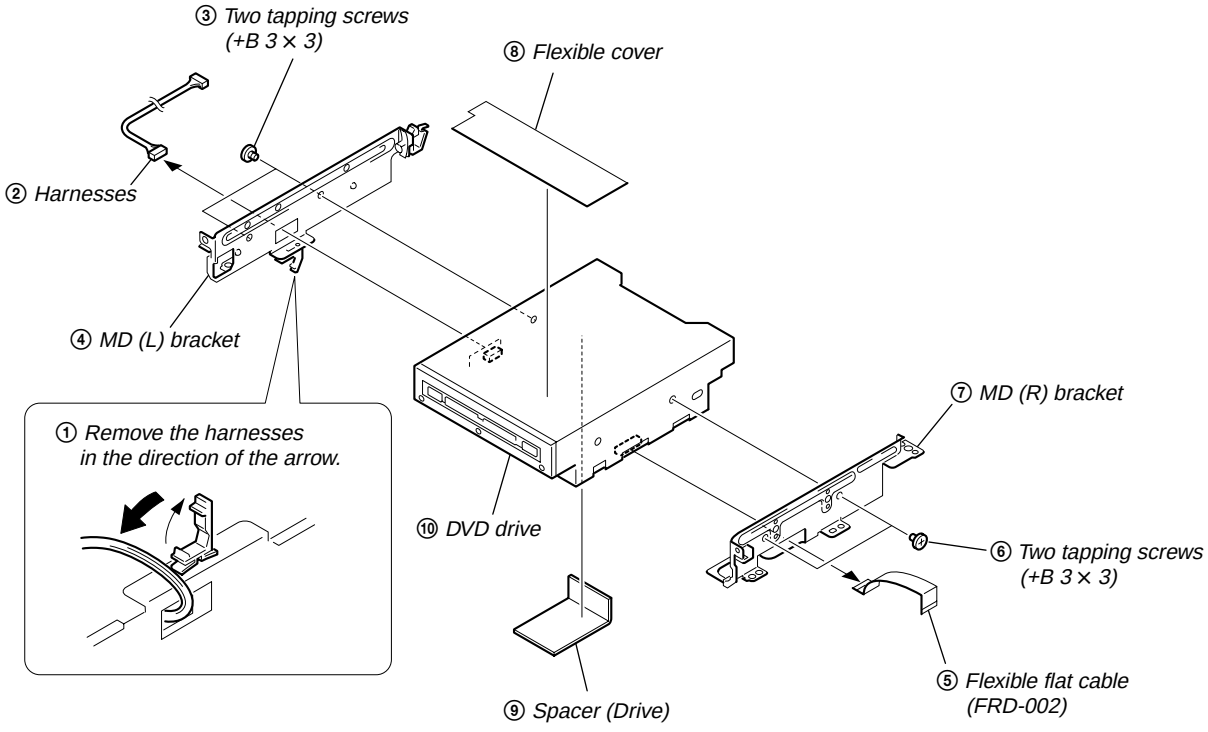
2-8. HARD DISK


⑥ Hard disk section
① Connector
⑤ Hard disk base, Four dampers
③ Ground spring (HDD)
④ Ground spring (HDD)
② Four screws
⑦ Remove the HDD shield plate in the direction of the arrows Ⓐ and Ⓑ.
Ⓑ
Ⓐ
⑧ Two tapes
⑨ Flexible flat cable (FRH-002) (CN1802)
⑩ Flexible cover
⑫ Hard disk
⑪ CN-243 board

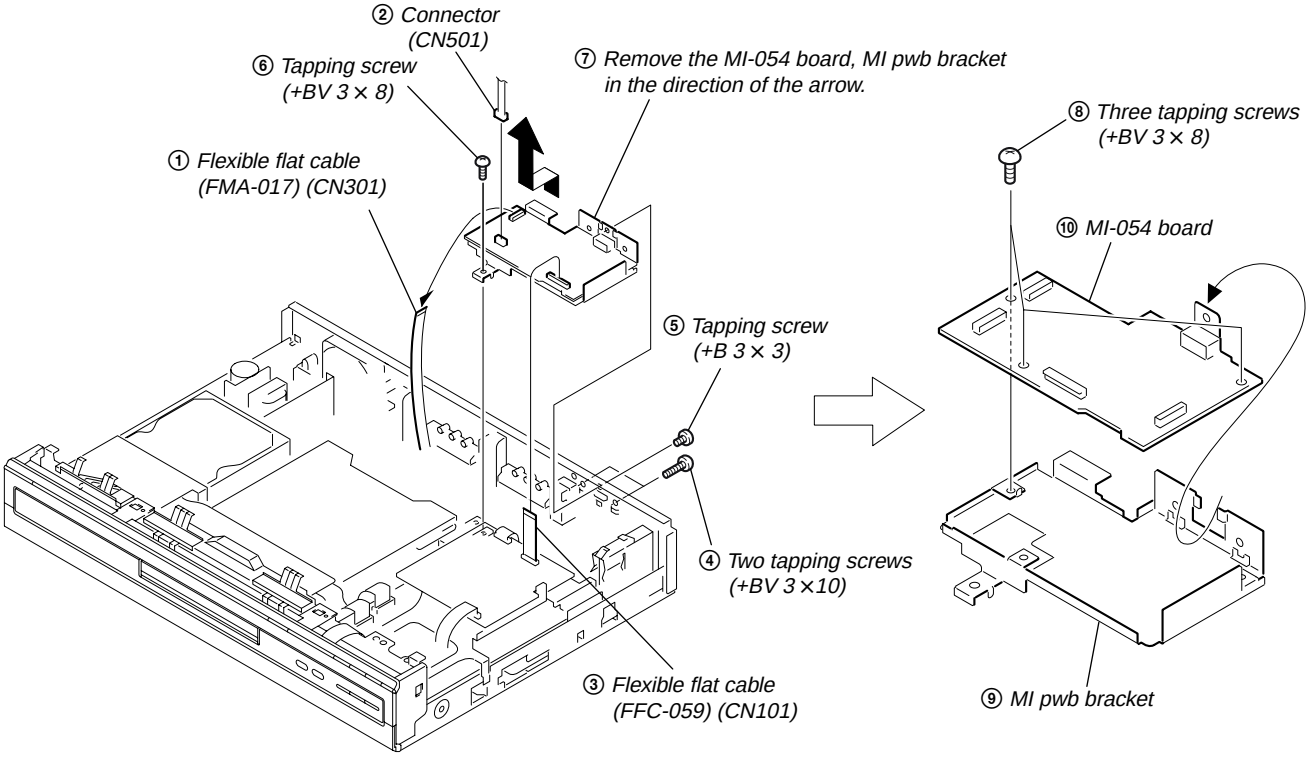
2-9. DVD SECTION


⑤ Four tapping screws (+BV 3 × 8)
① Remove the harnesses in the direction of the arrow Ⓑ.
Ⓑ
⑥ Remove the DVD section in the direction of the arrow Ⓐ.
② Connector (CN2)
④ Flexible flat cable (FRH-002) (CN603)
③ Flexible flat cable (FRD-001) (CN602)
Ⓐ

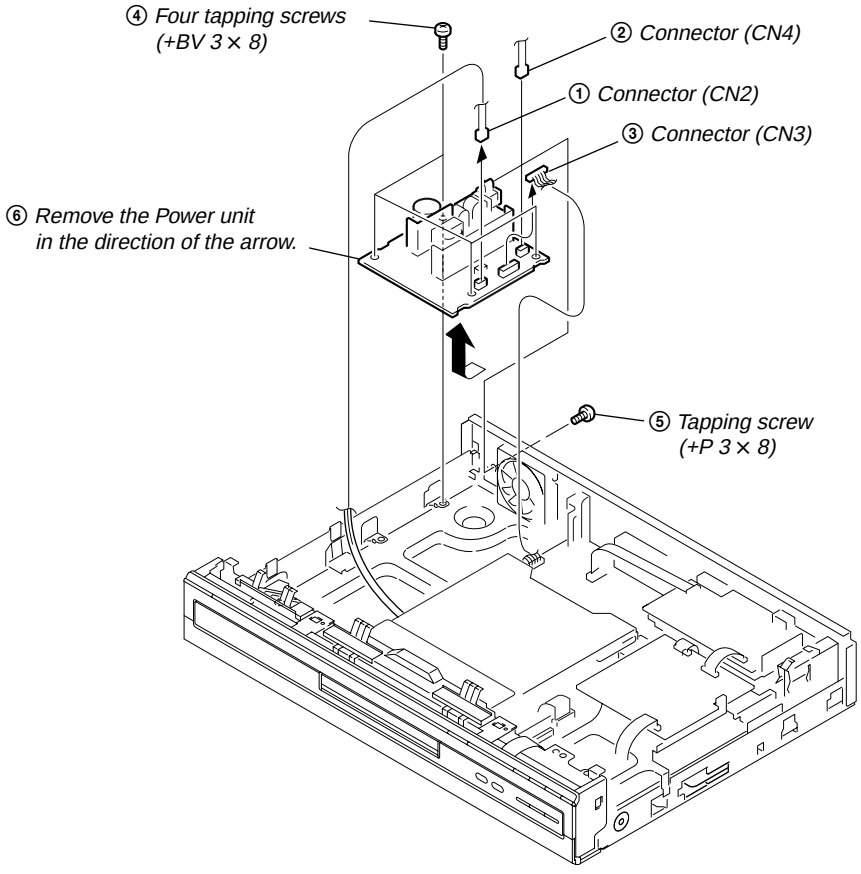
2-10. DVD DRIVE


③ Two tapping screws (+B 3 × 3)
⑧ Flexible cover
② Harnesses
④ MD (L) bracket
① Remove the harnesses in the direction of the arrow.
⑦ MD (R) bracket
⑩ DVD drive
⑥ Two tapping screws (+B 3 × 3)
⑤ Flexible flat cable (FRD-002)
⑨ Spacer (Drive)

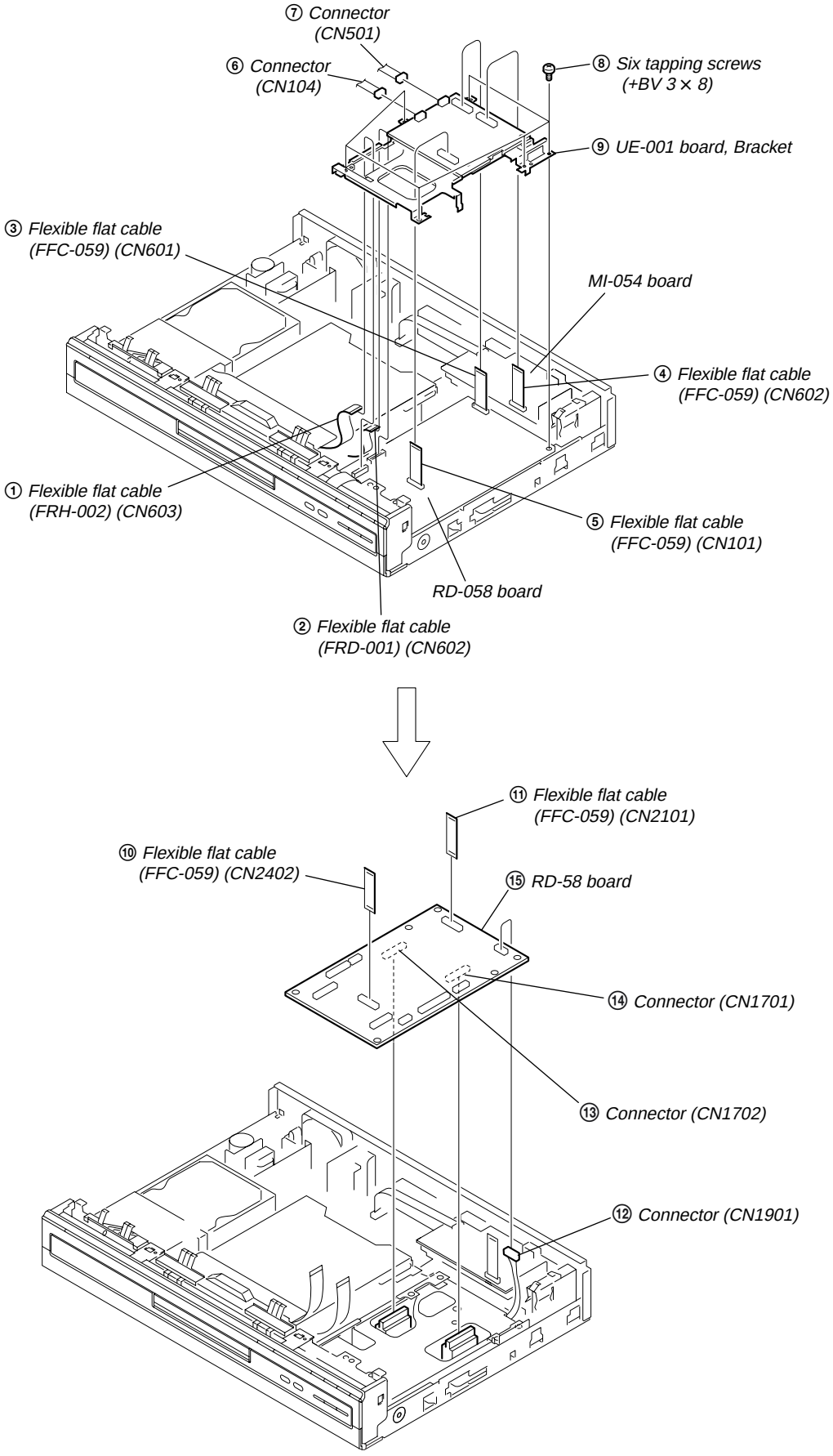
2-11. MI-054 BOARD


② Connector (CN501)
⑥ Tapping screw (+BV 3 × 8)
⑦ Remove the MI-054 board, MI pwb bracket in the direction of the arrow.
⑧ Three tapping screws (+BV 3 × 8)
① Flexible flat cable (FMA-017) (CN301)
⑩ MI-054 board
⑤ Tapping screw (+B 3 × 3)
④ Two tapping screws (+BV 3 ×10)
③ Flexible flat cable (FFC-059) (CN101)
⑨ MI pwb bracket

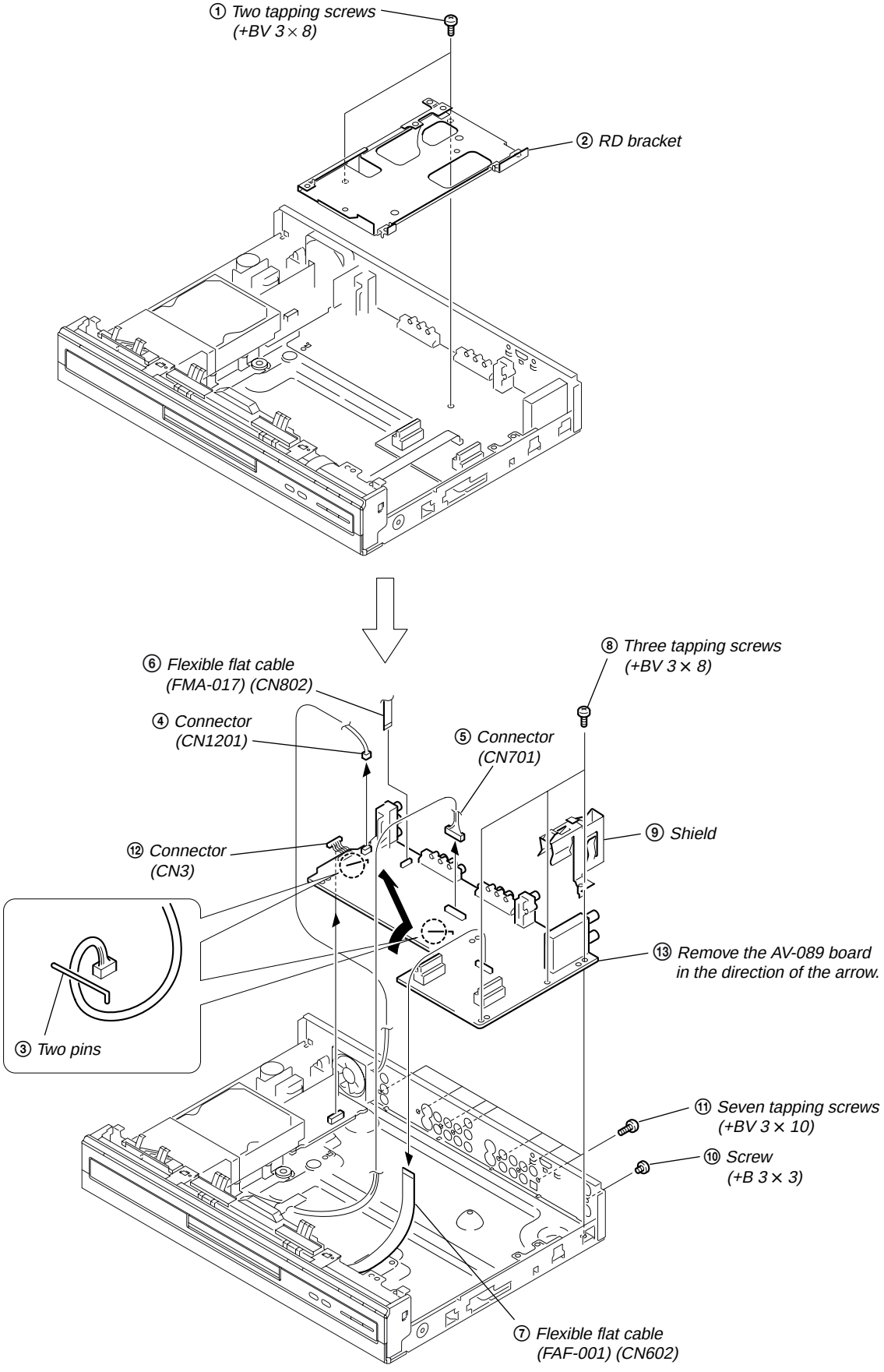
2-12. POWER UNIT


④ Four tapping screws (+BV 3 × 8)
② Connector (CN4)
① Connector (CN2)
③ Connector (CN3)
⑥ Remove the Power unit in the direction of the arrow.
⑤ Tapping screw (+P 3 × 8)

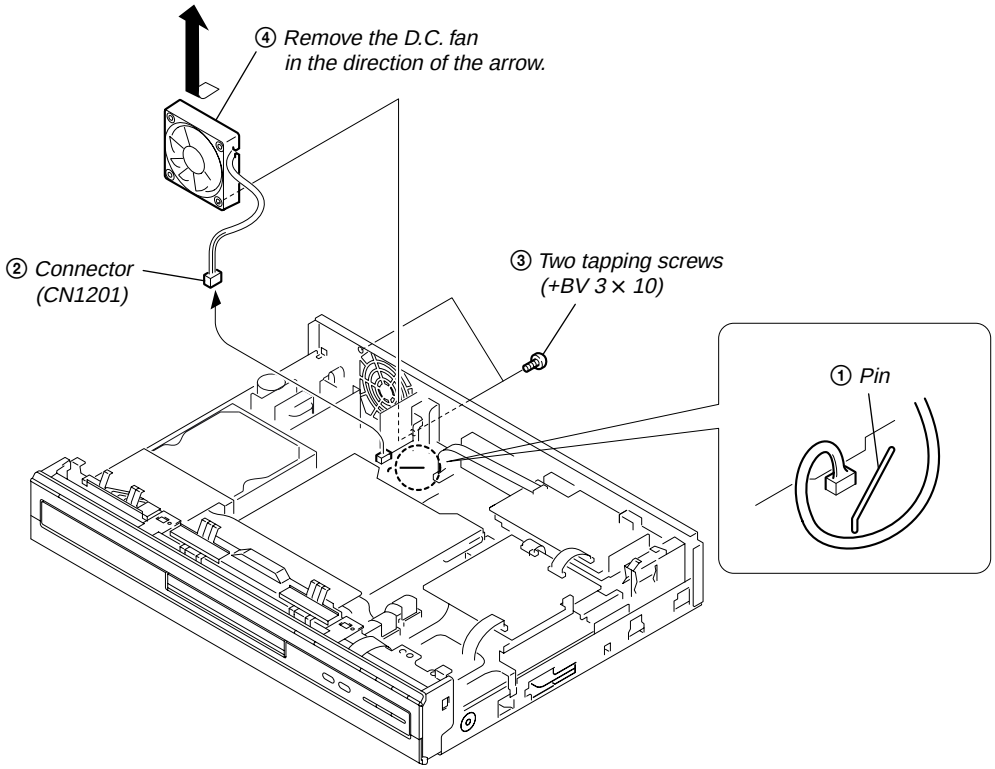
2-13. RD-58 BOARD


⑦ Connector (CN501)
⑥ Connector (CN104)
⑧ Six tapping screws (+BV 3 × 8)
⑨ UE-001 board, Bracket
③ Flexible flat cable (FFC-059) (CN601)
MI-054 board
④ Flexible flat cable (FFC-059) (CN602)
① Flexible flat cable (FRH-002) (CN603)
⑤ Flexible flat cable (FFC-059) (CN101)
RD-058 board
② Flexible flat cable (FRD-001) (CN602)
⑪ Flexible flat cable (FFC-059) (CN2101)
⑩ Flexible flat cable (FFC-059) (CN2402)
⑮ RD-58 board
⑭ Connector (CN1701)
⑬ Connector (CN1702)
⑫ Connector (CN1901)

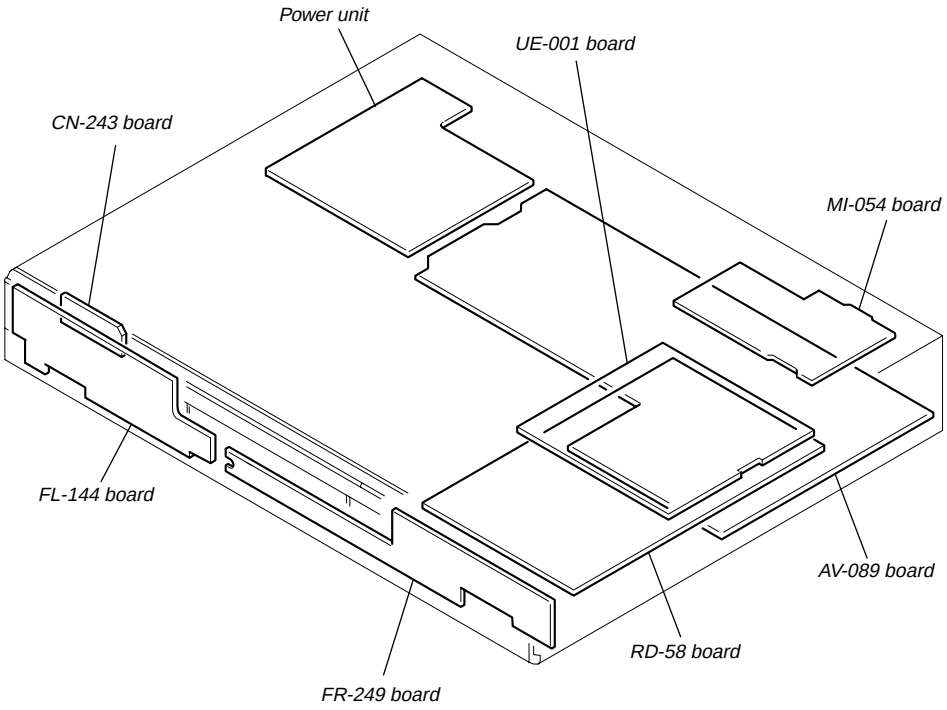
2-14. AV-089 BOARD


① Two tapping screws (+BV 3 × 8)
② RD bracket
⑥ Flexible flat cable (FMA-017) (CN802)
④ Connector (CN1201)
⑤ Connector (CN701)
⑧ Three tapping screws (+BV 3 × 8)
⑨ Shield
⑫ Connector (CN3)
⑬ Remove the AV-089 board in the direction of the arrow.
③ Two pins
⑪ Seven tapping screws (+BV 3 × 10)
⑩ Screw (+B 3 × 3)
⑦ Flexible flat cable (FAF-001) (CN602)

2-15. D. C. FAN

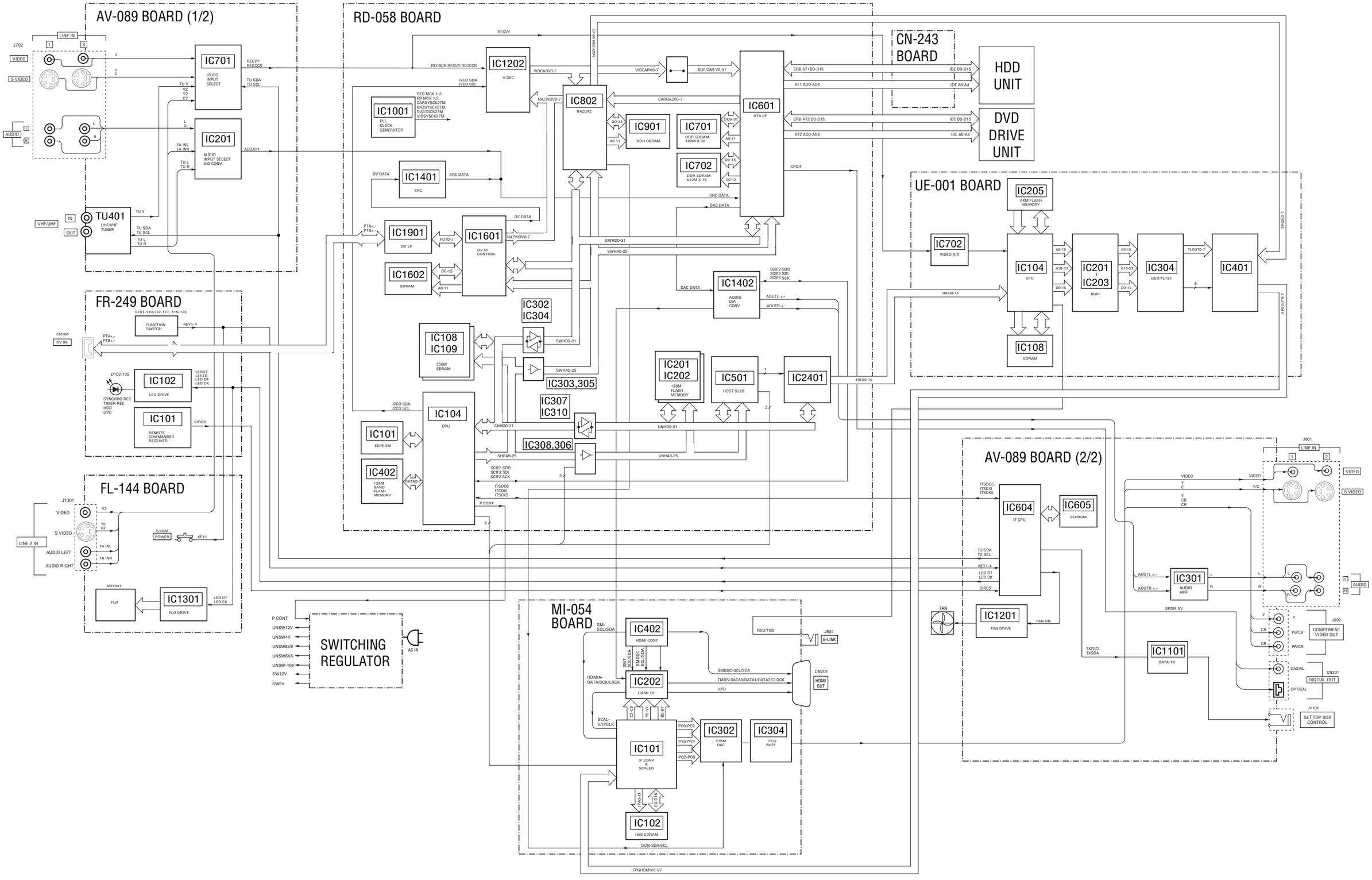


2-16. CIRCUIT BOARDS LOCATION

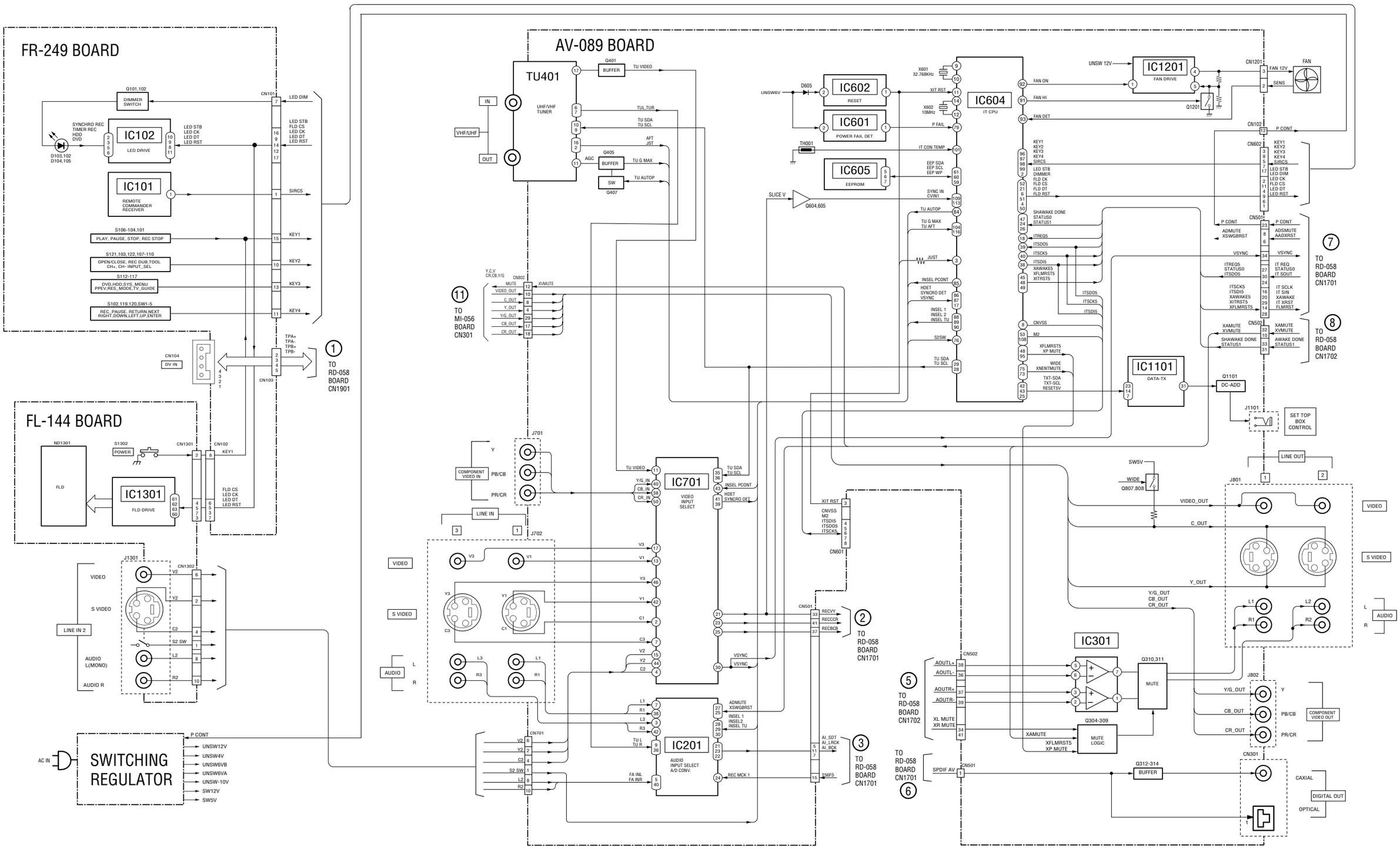


SECTION 3
BLOCK DIAGRAMS

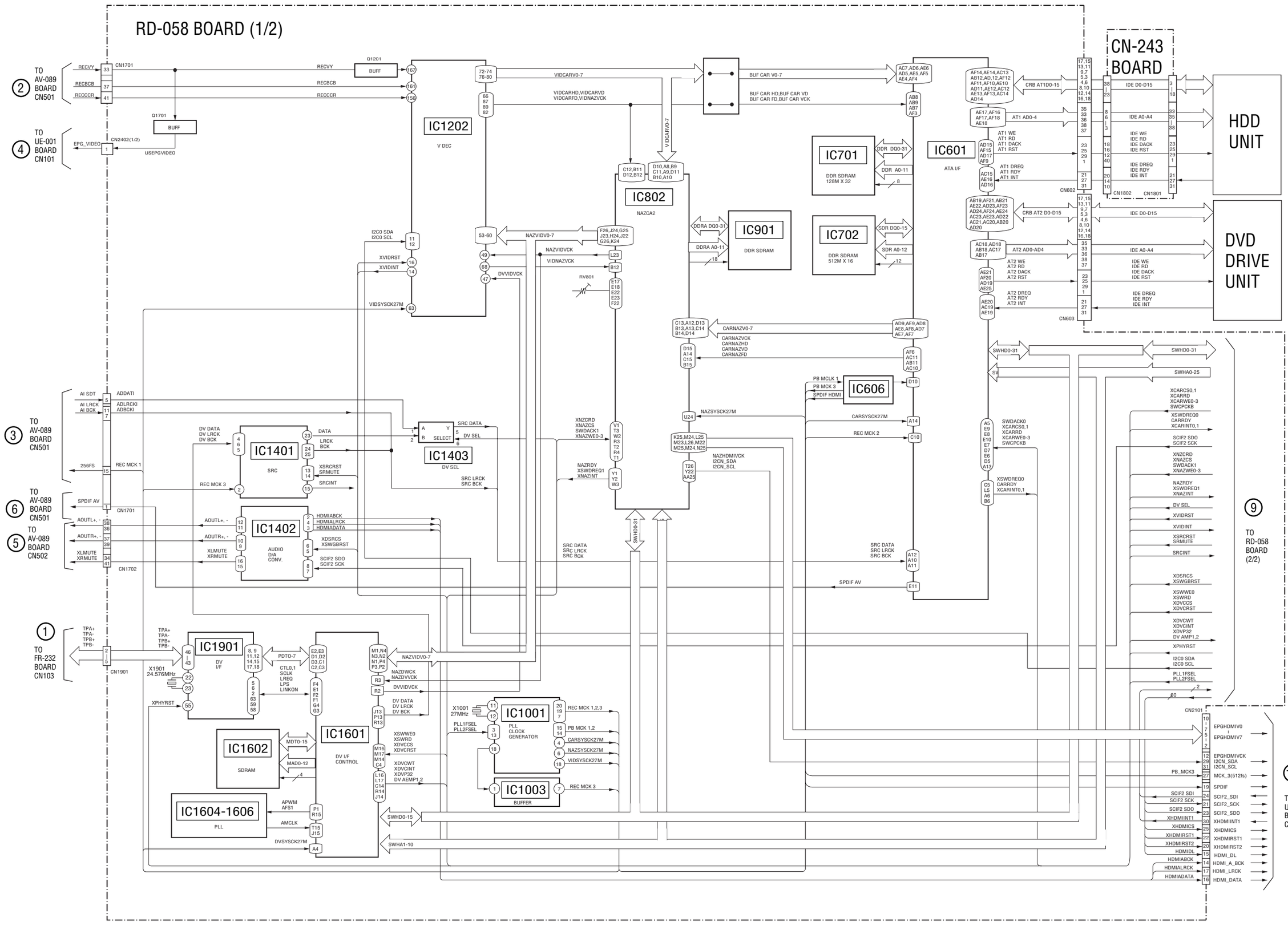
3-1. OVERALL BLOCK DIAGRAM (1/2)



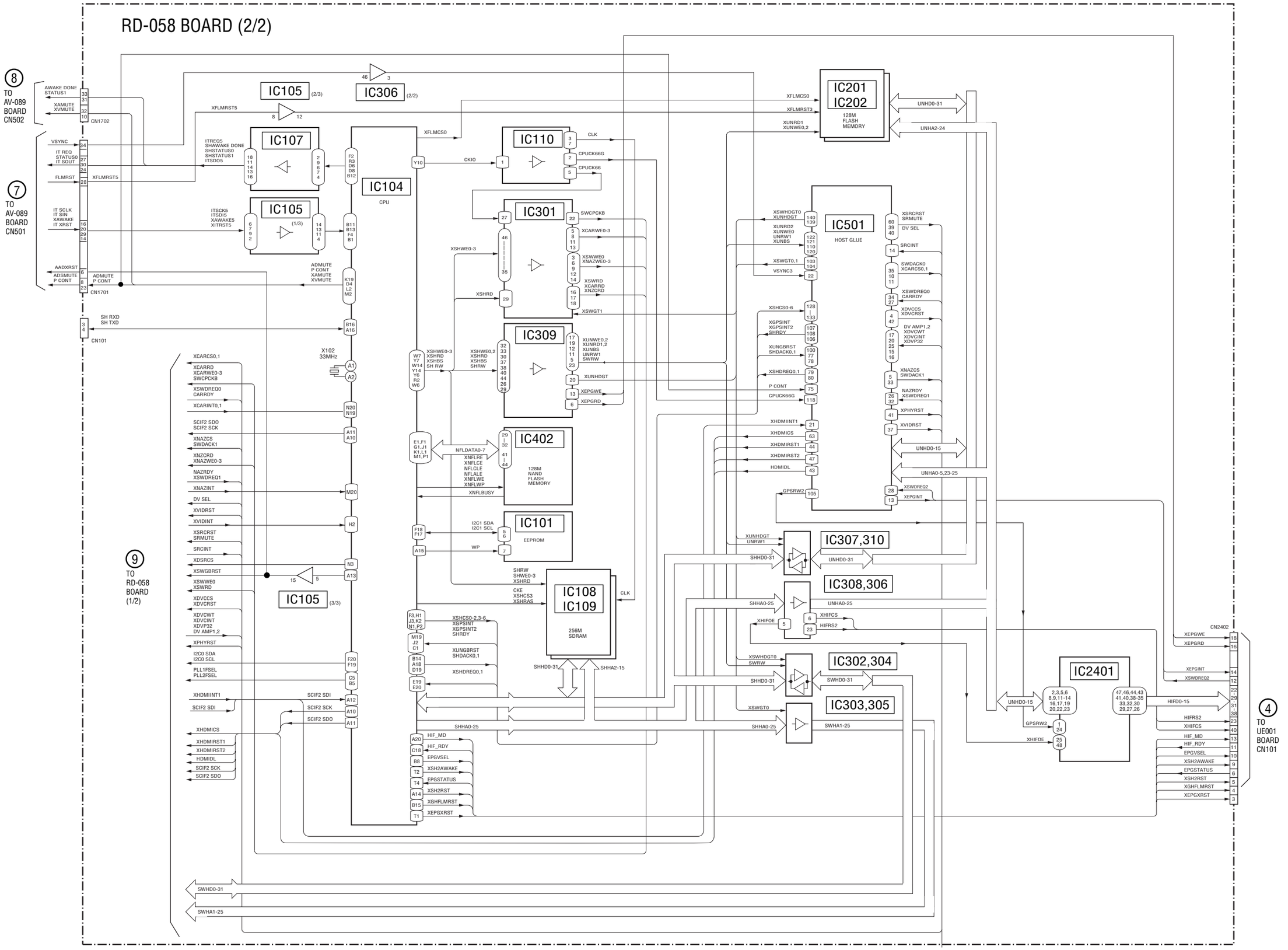
3-2. AV-089, FR-249, FL-144 BLOCK DIAGRAM



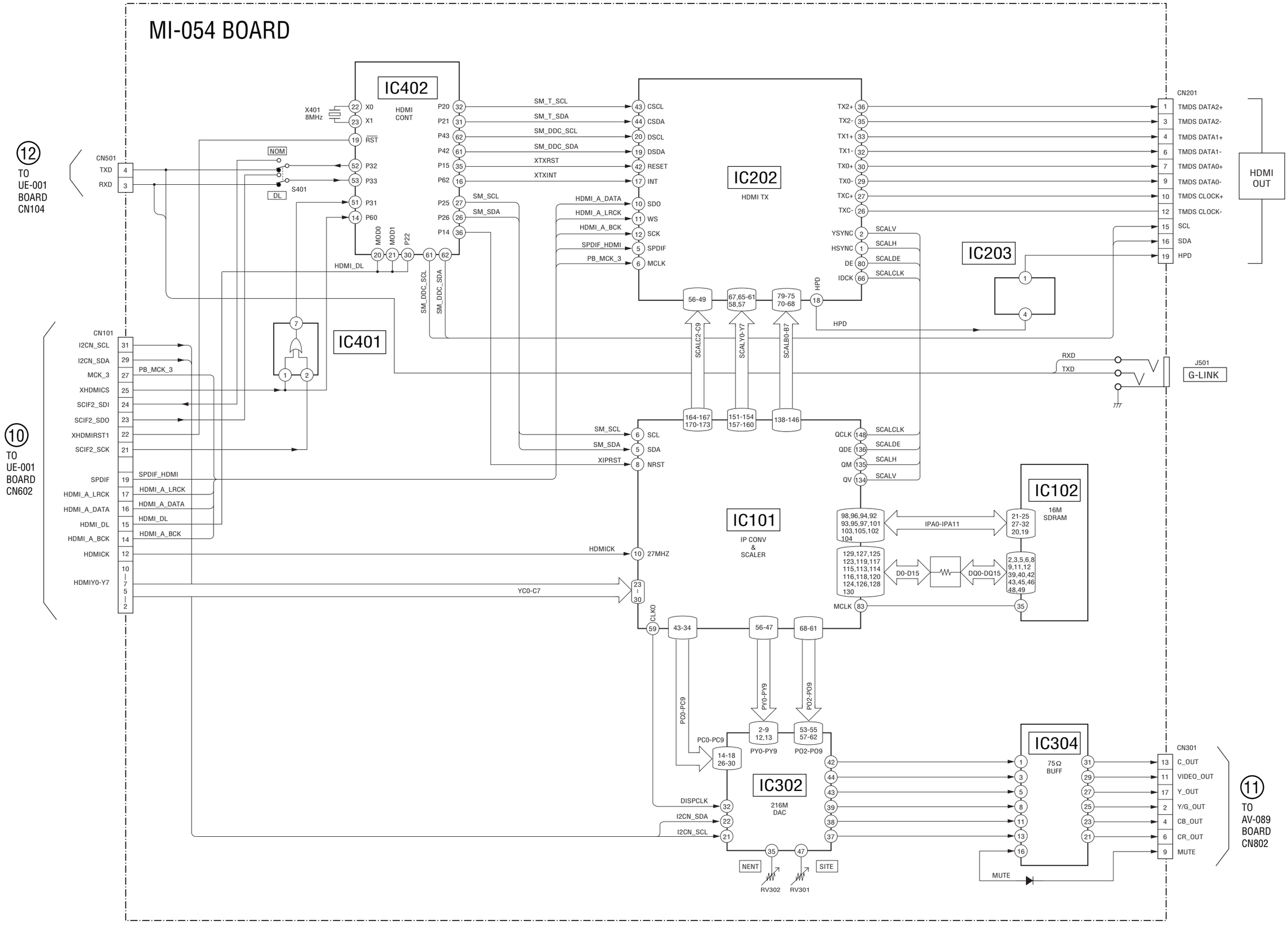
3-3. RD-058 BLOCK DIAGRAM (1/2)



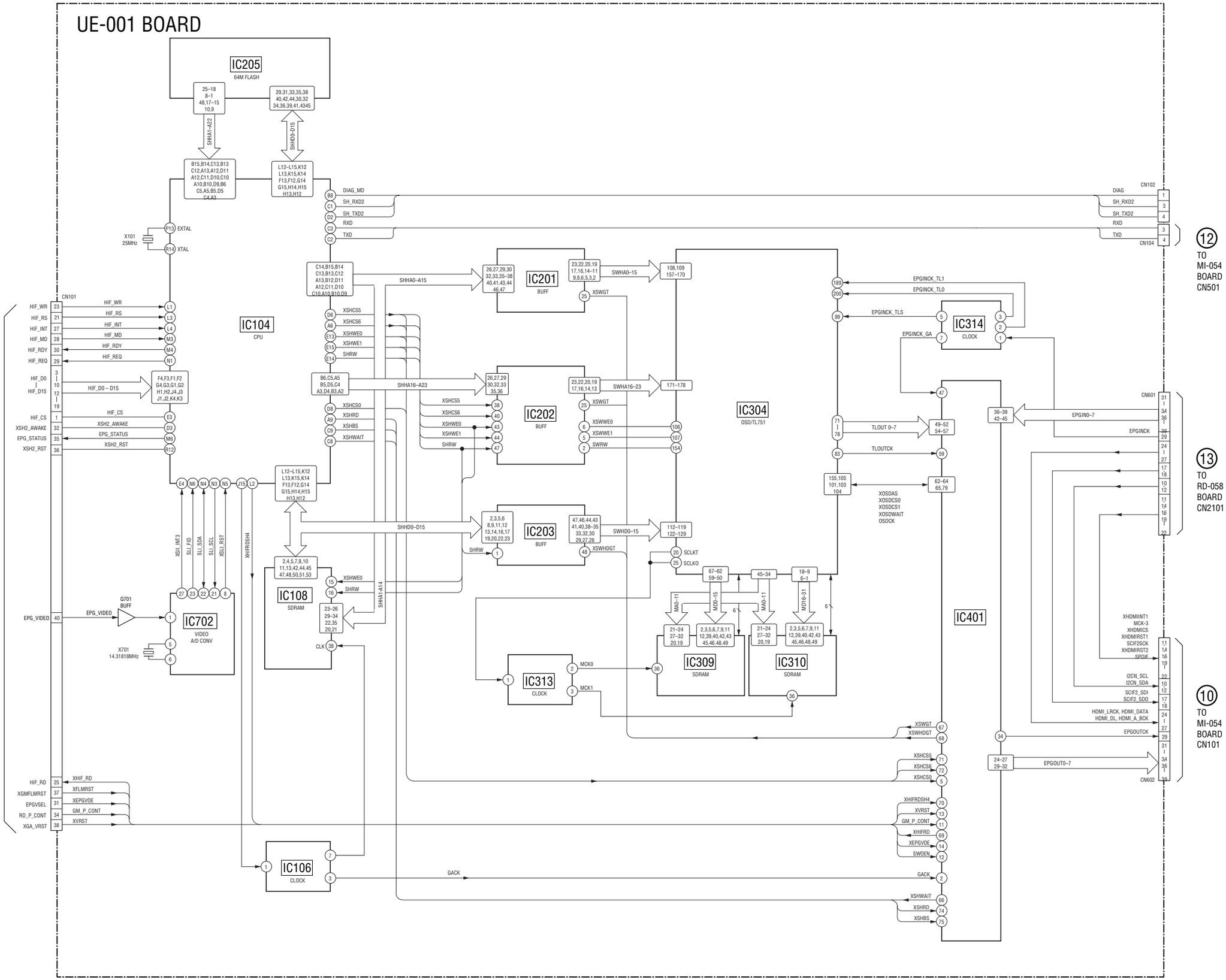
3-4. RD-058 BLOCK DIAGRAM (2/2)



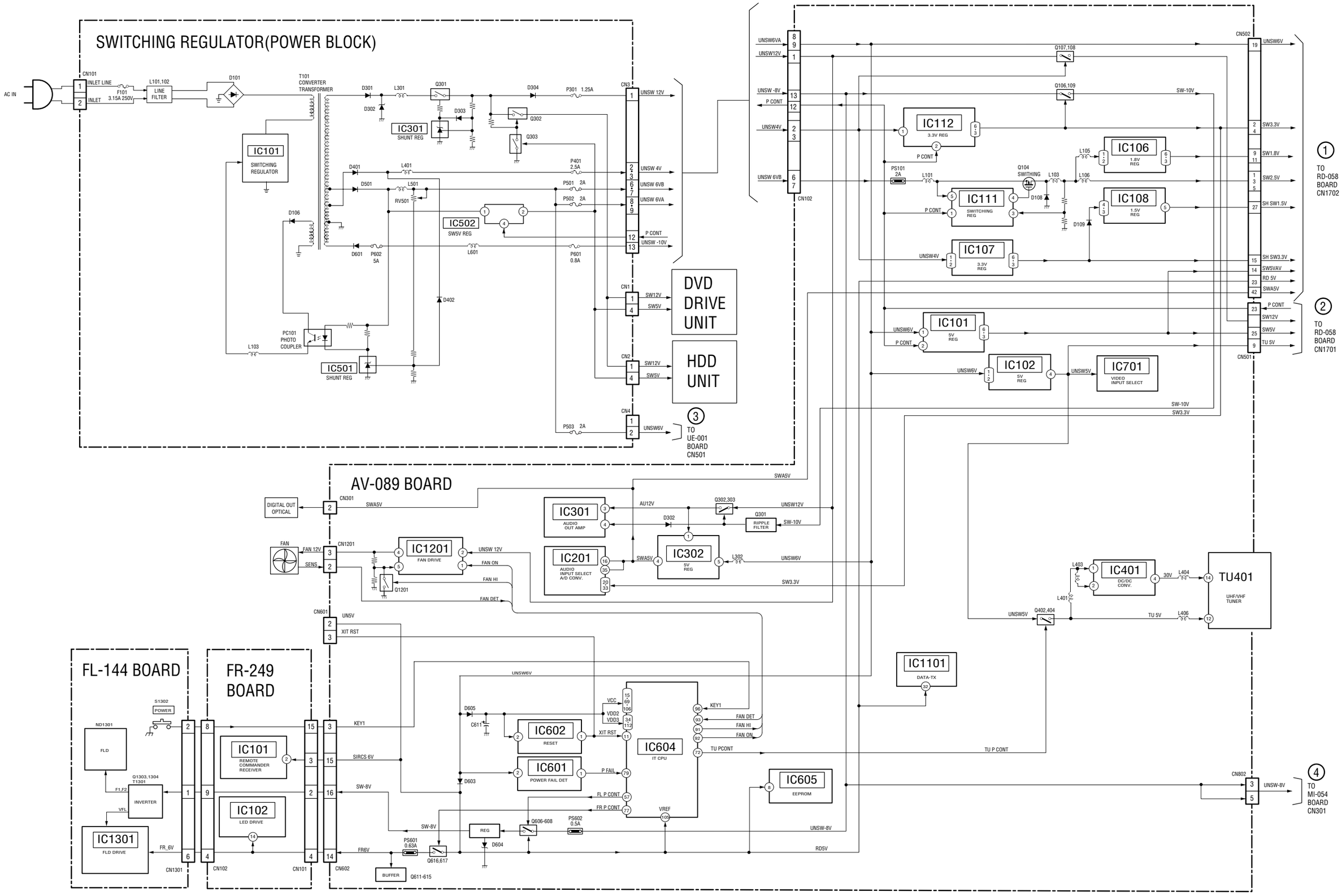
3-5. MI-054 BLOCK DIAGRAM



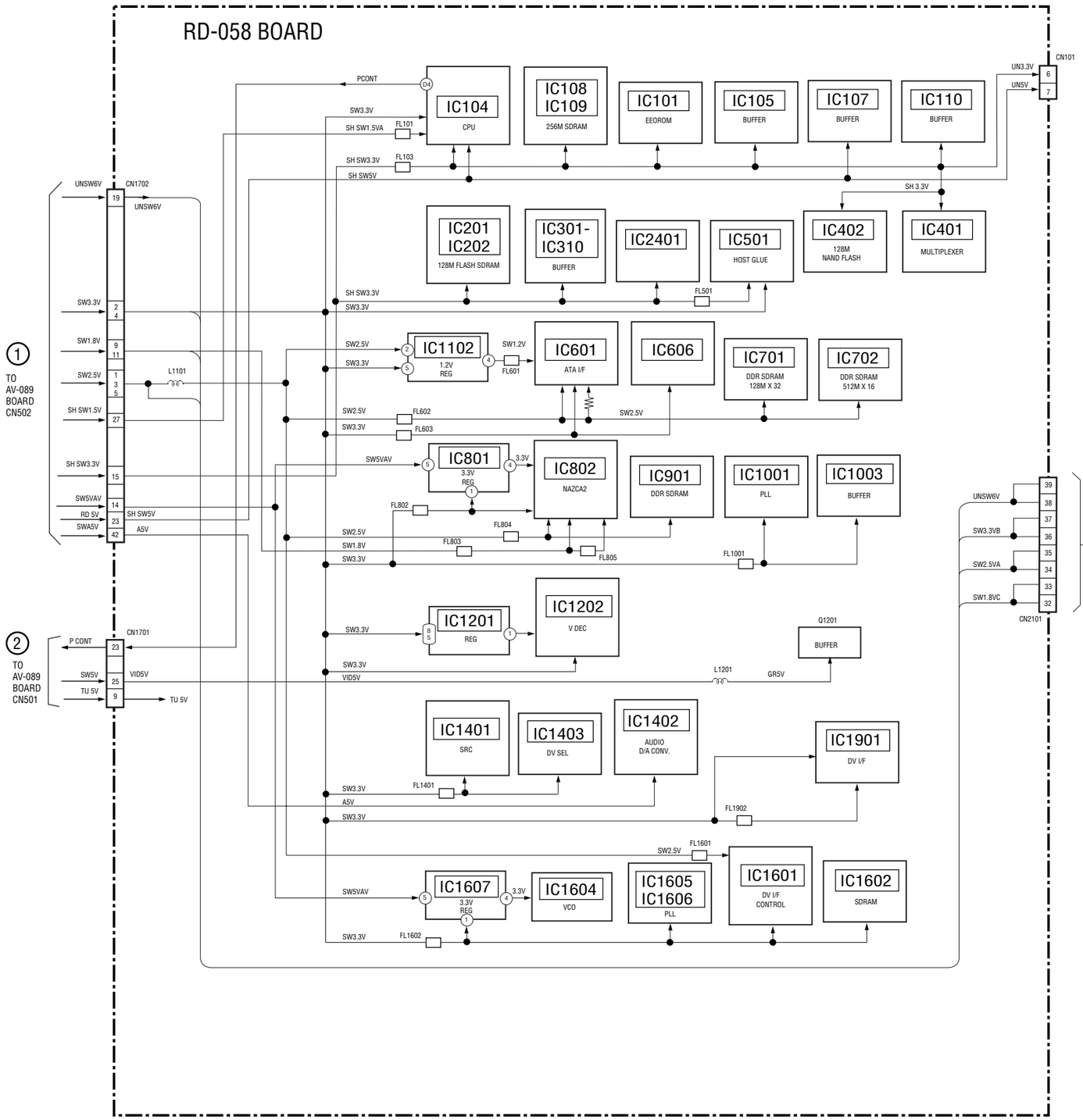
3-6. UE-001 BLOCK DIAGRAM

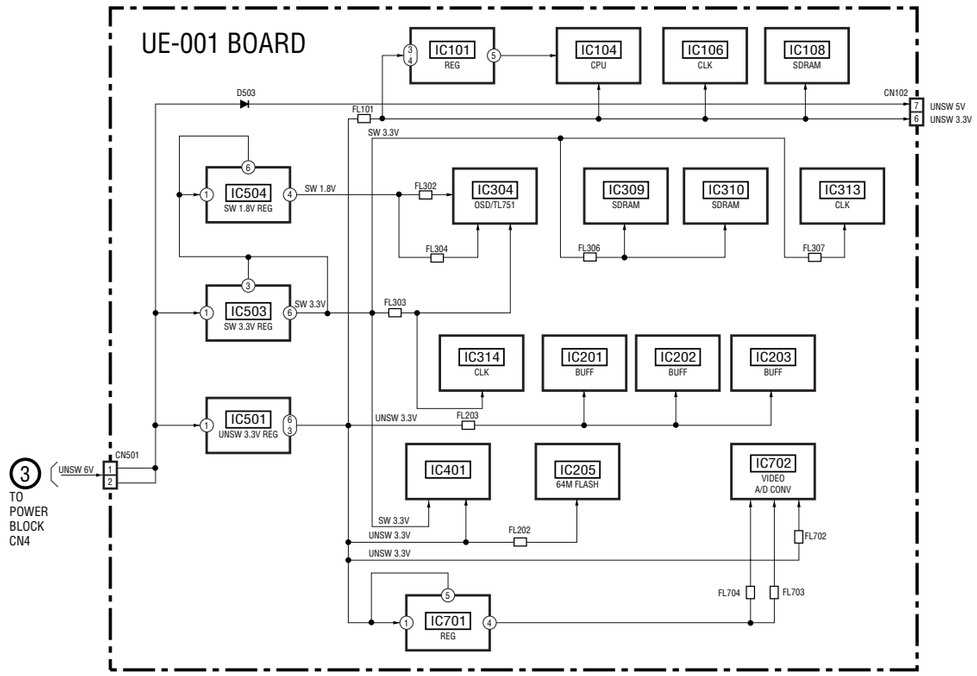


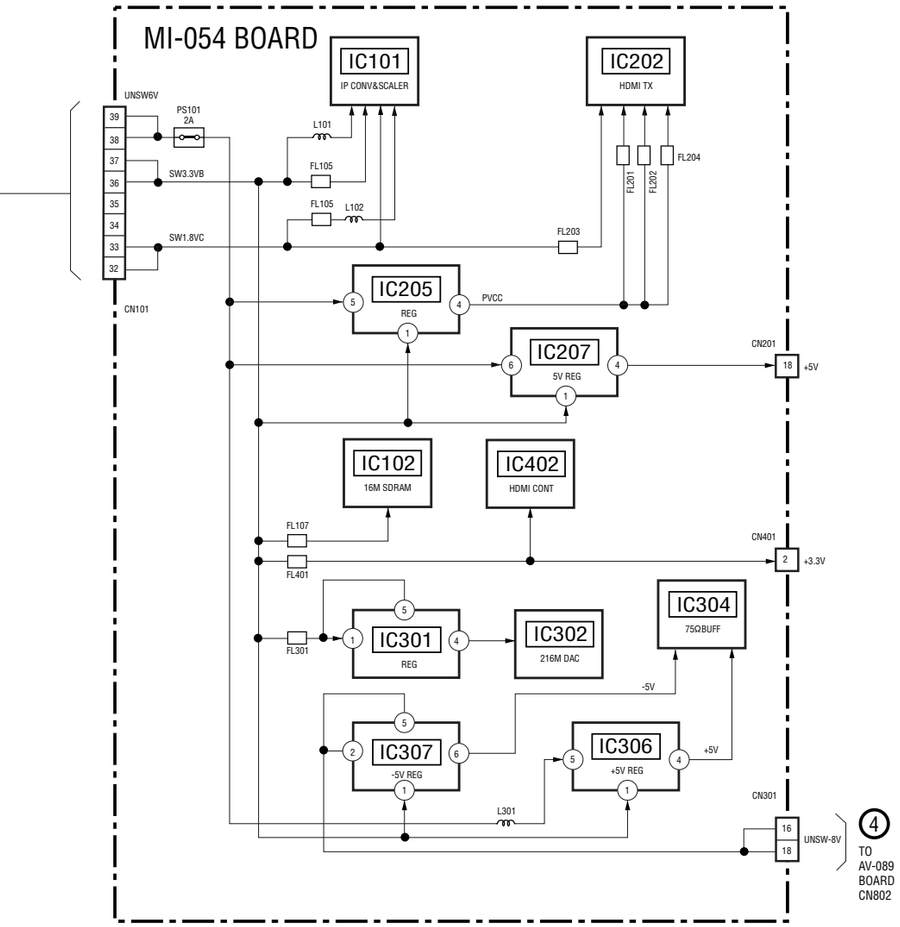
3-7. POWER BLOCK DIAGRAM (1/2)



3-8. POWER BLOCK DIAGRAM (2/2)

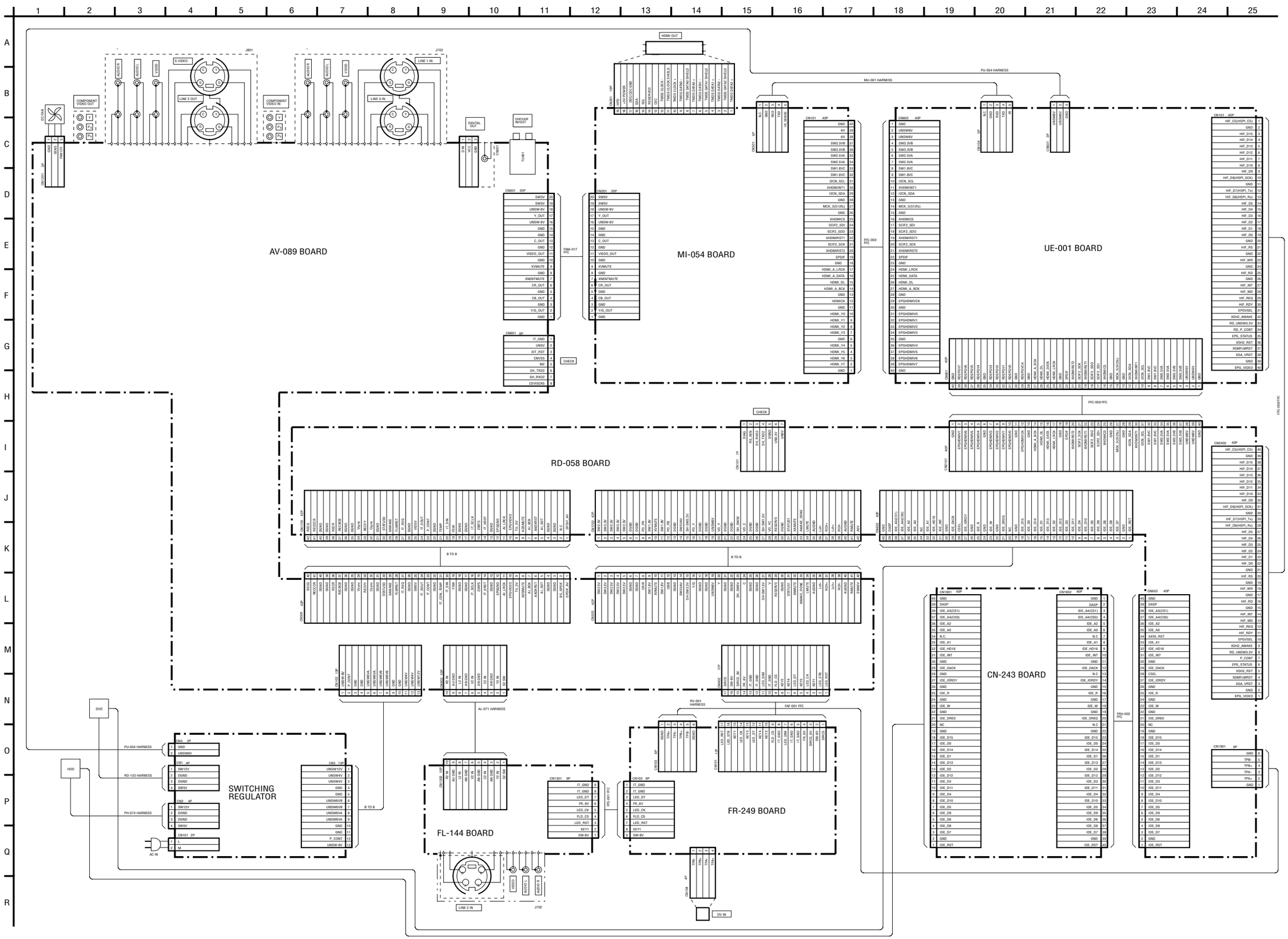






SECTION 4
SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

4-1. FRAME SCHEMATIC DIAGRAM



4-2. SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For schematic diagrams)

- All capacitors are in µF unless otherwise noted. pF : µµF. 50V or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4 W (Chip resistors : 1 /10 W) un-less otherwise specified.
  kΩ=1000Ω, MΩ=1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, be-cause it is damaged by the heat.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : non flammable resistor
- : fusible resistor
- : panel designation
- △ : internal component.
- : adjustment for repair.
- B + : B+ Line
- B − : B– Line
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signals on DVD reference disc.
- Readings are taken with a digital multimeter (DC 10MW).
- Voltage variations may be noted due to normal production toler-ances.

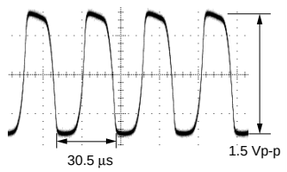
Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

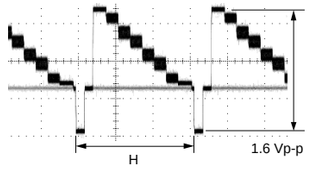
WAVEFORMS

AV-089 BOARD

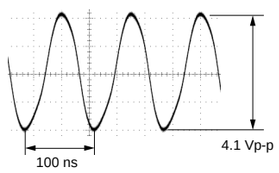
① X601



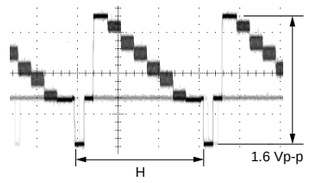
⑤ J801 S-VIDEO Y OUT



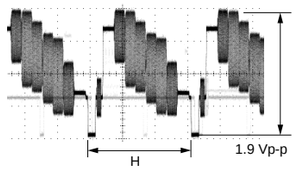
② X602



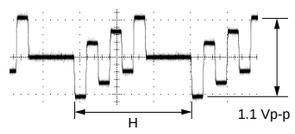
⑥ J802 Y OUT



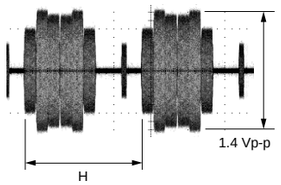
③ J801 VIDEO OUT



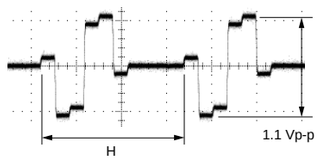
⑦ J802 Cb OUT



④ J801 S-VIDEO C OUT

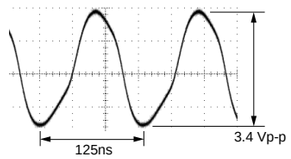


⑧ J802 Cr OUT



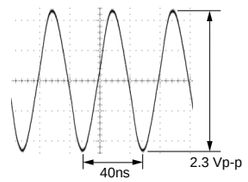
MI-054 BOARD

① X401

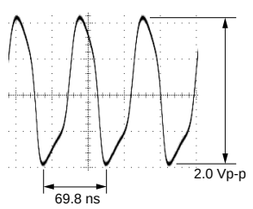


UE-001 BOARD

① X101

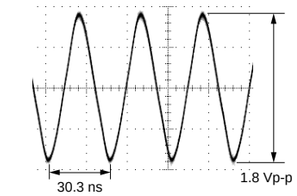


② X701

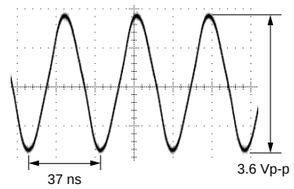


RD-058 BOARD

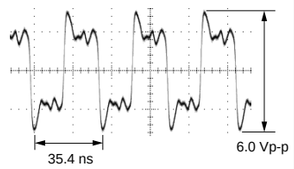
① X102



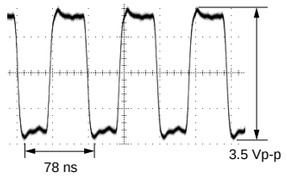
② X1001



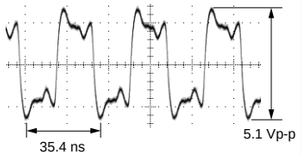
③ IC1604 ④



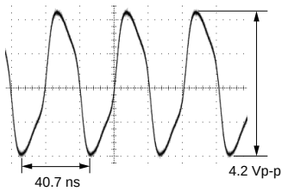
④ IC1605 ⑤



⑤ IC1606 ③



⑥ X1901

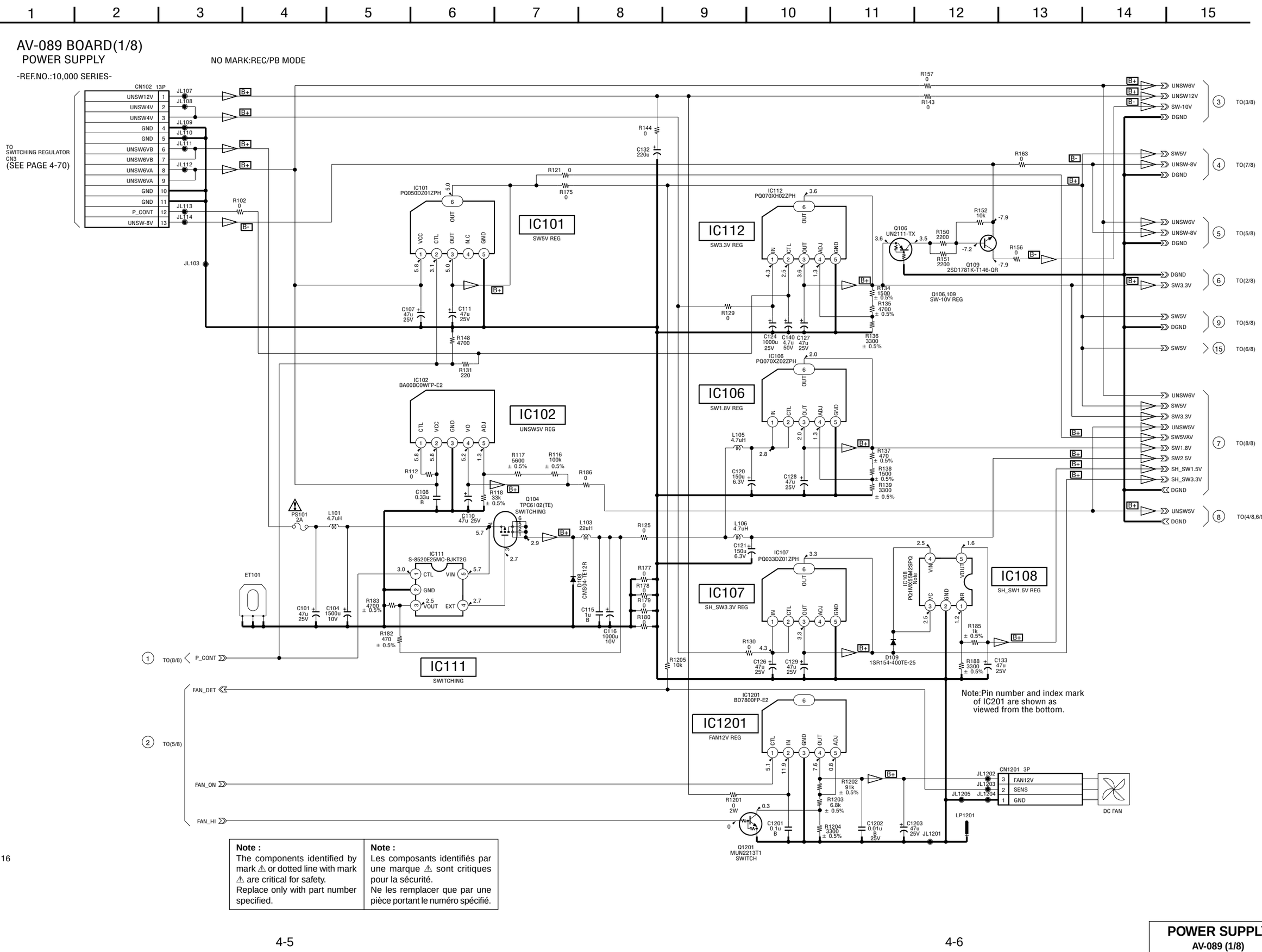


AV-089 BOARD(1/8)

POWER SUPPLY

-REF.NO.:10,000 SERIES-

NO MARK:REC/PB MODE



Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

AV-089 BOARD(2/8)

AUDIO A/D CONVERTER

-REF.NO.:10,000 SERIES-

NO MARK:REC/PB MODE

	AUDIO SIGNAL
REC	⇨
PB	

IC201
AUDIO A/D CONVERTER
IC201
AK5366VQ-L

AV-089 BOARD(3/8)

AUDIO OUT

-REF.NO.:10,000 SERIES-

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

Note:Pin number and index mark of IC201 are shown as viewed from the bottom.

IC301
AUDIO OUT AMP

IC302
5V REG

	AUDIO SIGNAL
REC	⇉
PB	⇉

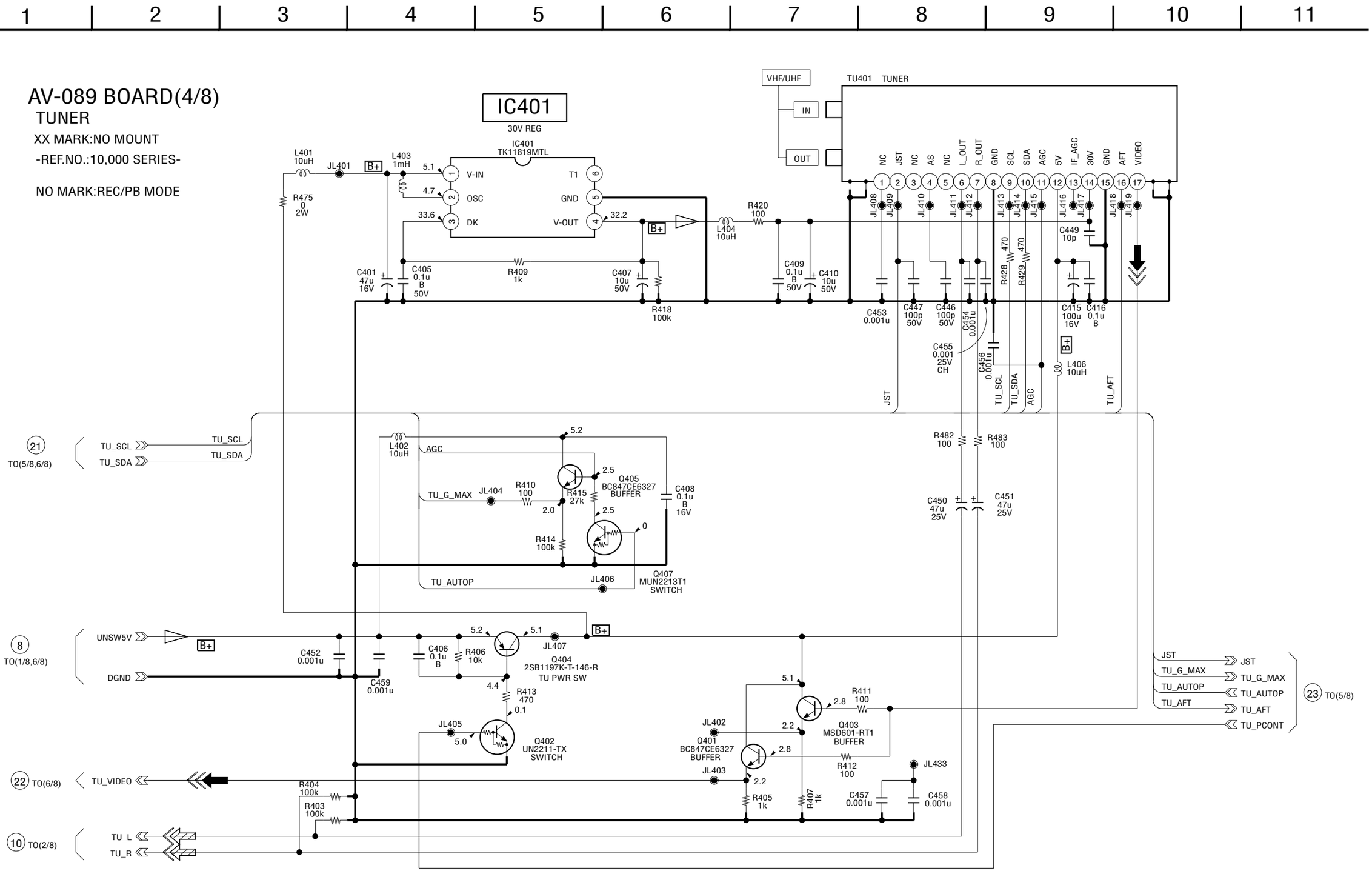
AV-089 BOARD(4/8)

TUNER

XX MARK:NO MOUNT

-REF.NO.:10,000 SERIES-

NO MARK:REC/PB MODE



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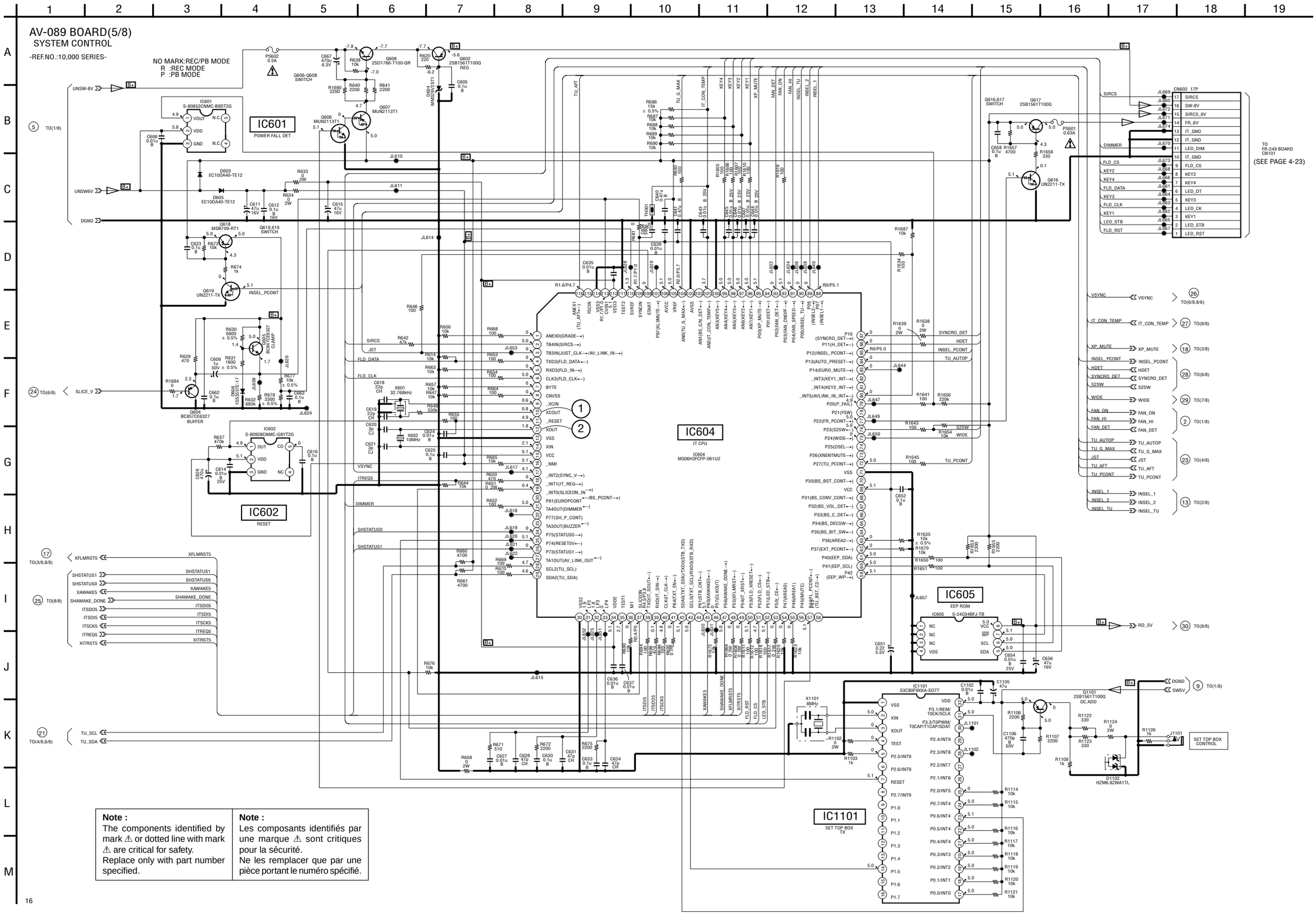
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	⇨
PB				

For Schematic Diagram

• Refer to page 4-3 for waveforms.

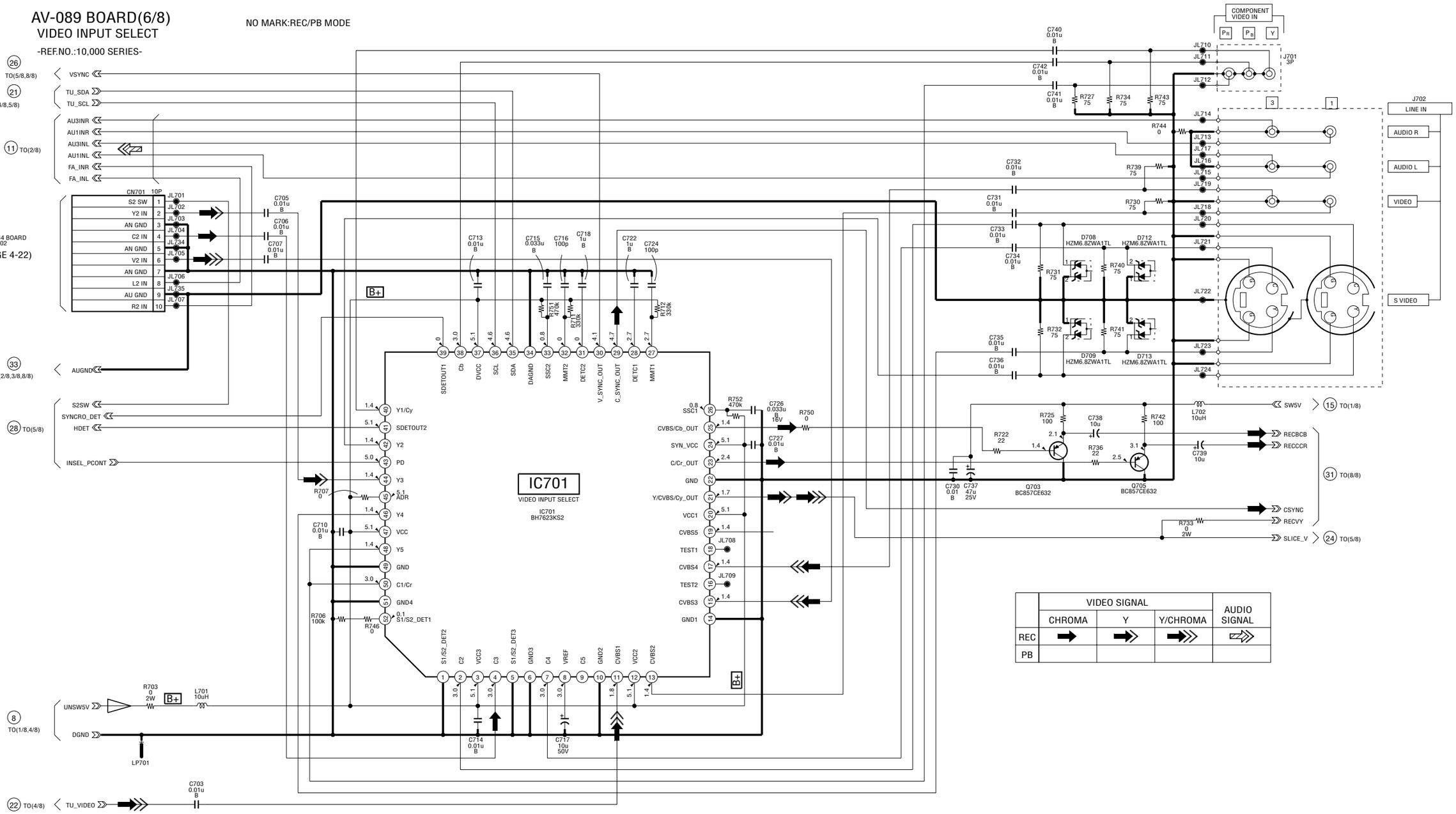


AV-089 BOARD(6/8)

VIDEO INPUT SELECT

-REF.NO.:10,000 SERIES-

NO MARK:REC/PB MODE



	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	⇨
PB				

VIDEO INPUT SELECT
AV-089 (5/8)

For Schematic Diagram
• Refer to page 4-3 for waveforms.

AV-089 BOARD(7/8)

VIDEO AMP

XX MARK:NO MOUNT

-REF.NO.:10,000 SERIES-

NO MARK:REC/PB MODE

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

32 TO(8/8) XVMUTE
29 TO(5/8) WIDE
4 TO(1/8)
19 TO(3/8)

L803 22uH
B+
Q808 MUN2113T1
Q807,808 SWITCH
Q807 MUN2213T1
R822 3300
AUOUTL2
AUOUTL1
AUOUTR2
AUOUTR1
AUGND

J801
LINE OUT
AUDIO R
AUDIO L
VIDEO
S VIDEO

R824 10k
R825 10k
R826 68
R827 68
R828 68
R829 68
R830 68
R831 68
R852 0
C814 0.1u B 16V
C815 0.1u B 16V
S-C
S-Y
V
D803 HZM6.8ZWA1TL
D805 HZM6.8ZWA1TL
D808 HZM6.8ZWA1TL
D809 HZM6.8ZWA1TL

JL801 JL802 JL803 JL804 JL805 JL806 JL807 JL808 JL809 JL810 JL811

J802
COMPONENT VIDEO OUT PR,PB,Y
JL812 JL813 JL814
Y/G
CB
CR

CN802 20P

JL841	20	GND
JL831	19	Y/G_OUT
JL840	18	GND
JL833	17	CB_OUT
	16	GND
JL835	15	CR_OUT
JL823	14	XNENTMUTE
	13	GND
JL825	12	XVMUTE
	11	GND
JL826	10	VIDEO_OUT
	9	GND
JL827	8	C_OUT
	7	GND
	6	GND
	5	UNSW-8V
JL829	4	Y_OUT
JL839	3	UNSW-8V
JL824	2	SW5V
JL822	1	SW5V

TO MI-054 BOARD(3/4) CN301
(SEE PAGE 4-26)

SW5V B+
UNSW-8V B-
DGND
L804 22uH

AV-089 BOARD(8/8)

CONNECTOR

-REF.NO.:10,000 SERIES-

CN502 42P B TO B

SWA5V	42	JL561
RMUTE	41	JL560
AUGND	40	
RCH-	39	JL559
Lch+	38	JL558
RCH+	37	JL557
Lch-	36	JL556
AUGND	35	JL555
LMUTE	34	JL554
AWAKE_DONE	33	JL553
XAMUTE	32	JL552
STATUS1	31	JL551
DGND	30	JL533
RESERVE	29	JL550
V	28	JL549
SH-SW1.5V	27	JL548
DGND	26	
DGND	25	JL547
C	24	JL546
SH_SW5V	23	JL545
DGND	22	
DGND	21	
Y	20	JL544
UNSW6V	19	JL543
DGND	18	
DGND	17	
Y/G	16	JL542
SH-SW3.3V	15	JL541
SW5VAV	14	
DGND	13	
CB/B	12	JL540
SW1.8V	11	JL566
XVMUTE	10	JL539
SW1.8V	9	JL538
CR/R	8	JL537
DGND	7	
DGND	6	JL536
SW2.5V	5	JL565
SW3.3V	4	JL564
SW2.5V	3	JL563
SW3.3V	2	JL535
SW2.5V	1	JL534

B+ SWA5V → (12) TO(2/8,3/8)

AUGND → (33) TO(2/8,3/8 6/8)

AOUTL+, AOUTL-, AOUTR-, AOUTR+, XAMUTE, XLMUTE → (16) TO(3/8)

AOUTR-, AOUTL+, AOUTR+, AOUTL-, XLMUTE, XAMUTE

SHAWAKE_DONE

SHSTATUS1

RD_5V → (30) TO(5/8)

XVMUTE → (32) TO(7/8)

B+ SW1.8V, SW5VAV, SH_SW1.5V, UNSW6V, SH_SW3.3V, SW3.3V, SW2.5V, SW5V, UNSW5V, DGND → (7) TO(1/8)

(14) TO(2/8): ADMUTE, XSWGBRST, REC_MCK_1, ADLRCKI, ADBCKI, ADDATI

(20) TO(3/8): SPDIF_AV

(25) TO(5/8): SHSTATUS1, SHSTATUS0, XAWAKE5, SHAWAKE_DONE, ITSDO5, ITSDI5, ITREQ5, ITSCK5, XITRST5

(17) TO(3/8,5/8): XFLMRST5

(27) TO(5/8): IT_CON_TEMP

(1) TO(1/8): P_CONT

(26) TO(5/8,6/8): VSYNC

(31) TO(6/8): RECBCB, RECVY, RECCCR, CSYNC

C502 0.01u B 25V

CN501 42P B TO B

JL502	1	SPDIF_AV
JL503	2	BS_SPDIF
JL504	3	DGND
JL505	4	DGND
JL506	5	AI_SDT
JL507	6	AADXRST
JL508	7	AI_BCK
JL509	8	ADSMUTE
JL562	9	TU_5V
JL510	10	EPGVIDEO
JL511	11	AI_LRCK
JL512	12	EPGGND
	13	DGND
JL513	14	IT_XRST
JL514	15	256FS
JL515	16	IT_SCLK
	17	DGND
	18	DGND
JL516	19	FSW
JL517	20	IT_SIN
JL518	21	IT_CON_TEMP
	22	DGND
JL519	23	P_CONT
JL520	24	IT_SOUT
JL521	25	SW5V
	26	DGND
JL522	27	IT_REQ
JL523	28	FLMRST
JL524	29	XAWAKE
JL525	30	STATUS0
	31	DGND
JL526	32	Csync
JL527	33	RECVY
JL528	34	Vsync
	35	DGND
	36	DGND
JL529	37	RECBCB
JL530	38	RECR
	39	DGND
	40	DGND
JL531	41	RECCCR
JL532	42	RECG

ADDATI, XSWGBRST, ADBCKI, ADMUTE, B+, ADLRCKI, XITRST5, REC_MCK_1, ITSCK5, ITSDO5, ITSDI5, IT_CON_TEMP, ITREQ5, XFLMRST5, XAWAKE5, SHSTATUS0, CSYNC, RECVY, VSYNC, RECBCB, RECCCR

JL501

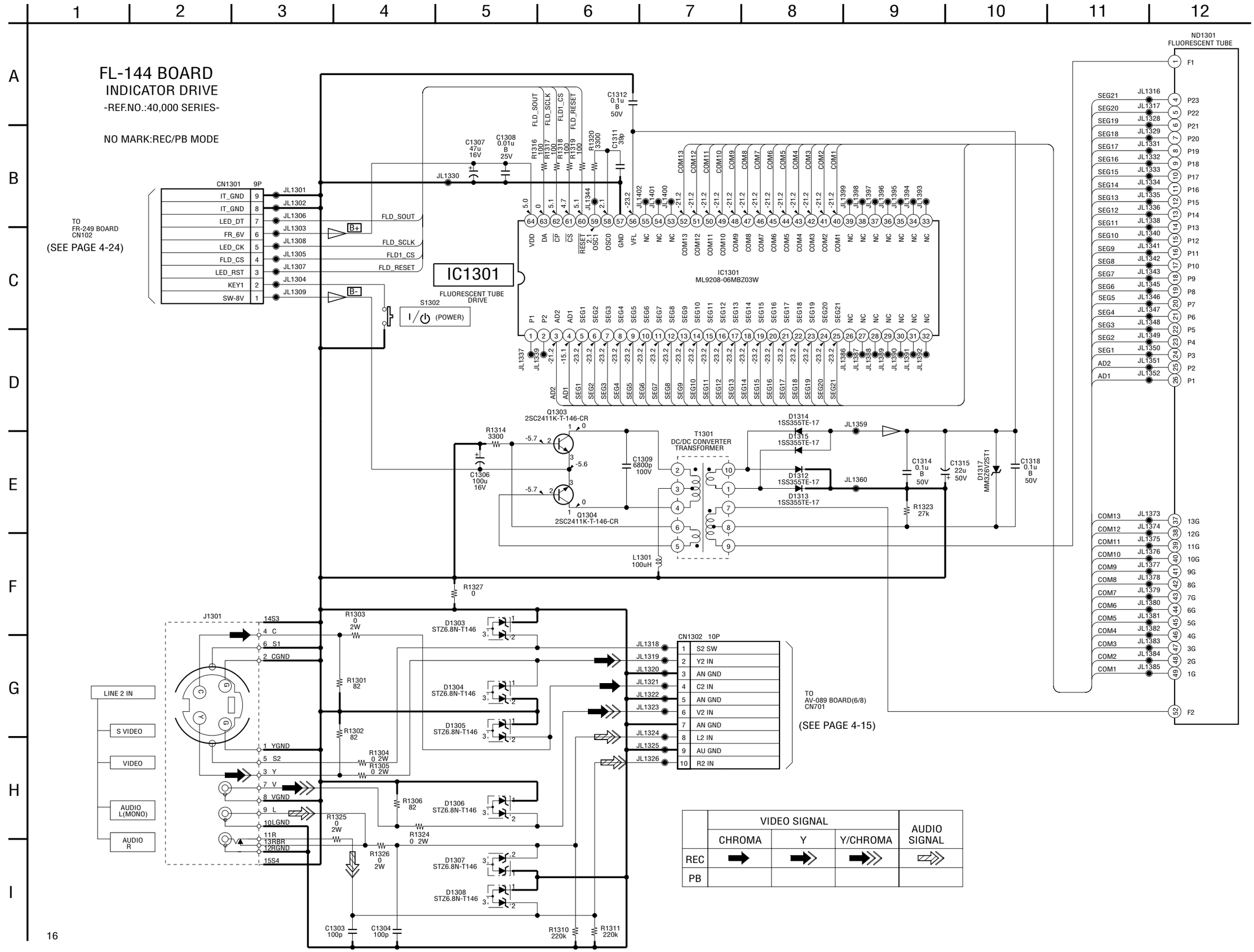
TO RD-058 BOARD(12/14) CN1702 (SEE PAGE 4-54)

TO RD-058 BOARD(12/14) CN1701 (SEE PAGE 4-54)

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	⇨
PB				

FL-144 BOARD
INDICATOR DRIVE
-REF.NO.:40,000 SERIES-

NO MARK:REC/PB MODE



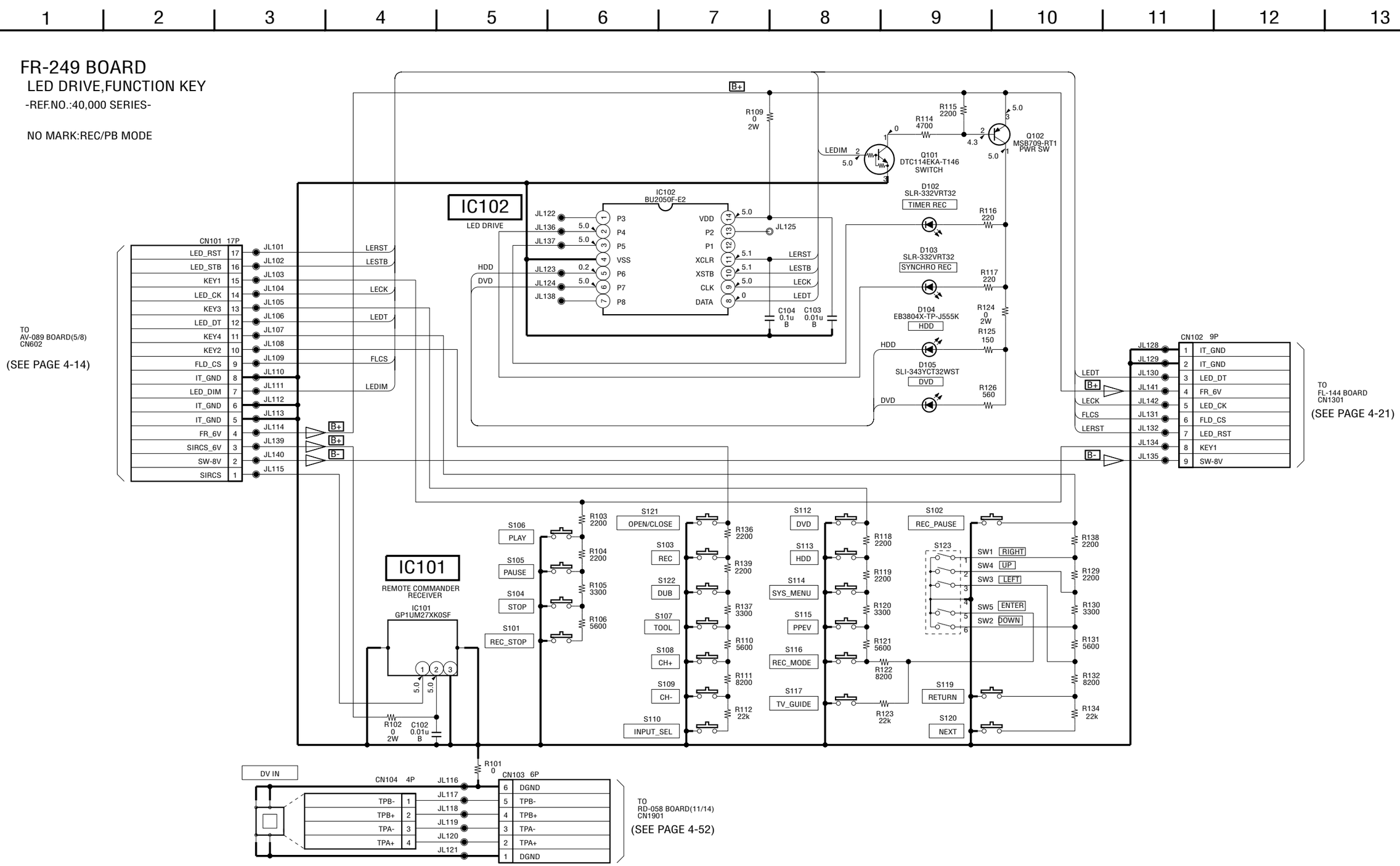
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	⇨
PB				

FR-249 BOARD

LED DRIVE,FUNCTION KEY

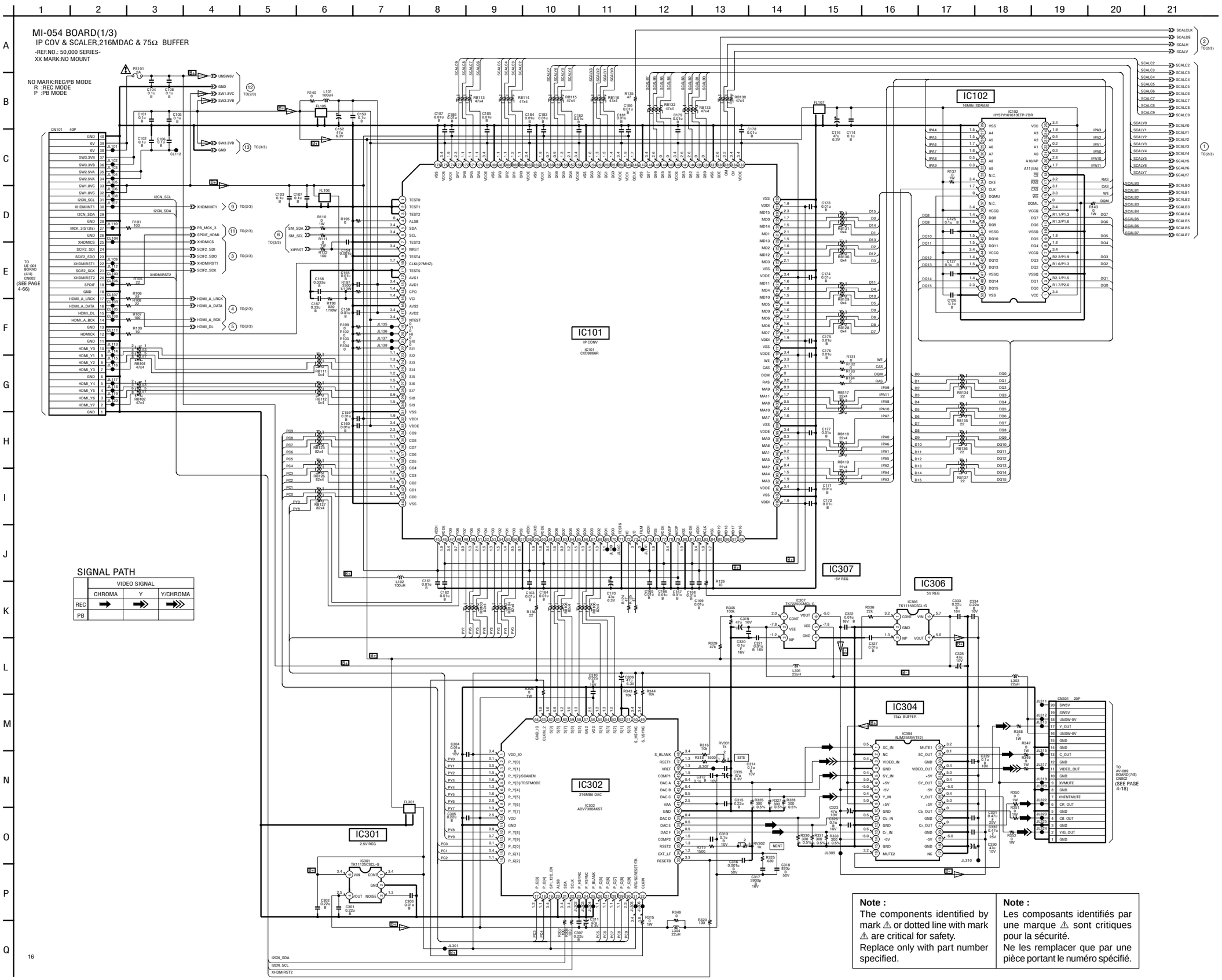
-REF.NO.:40,000 SERIES-

NO MARK:REC/PB MODE



For Schematic Diagram

• Refer to page 4-71 for printed wiring board.



Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

IP COV & SCALER, 216MDAC & 75Ω BUFFER
MI-054 (1/3)

For Schematic Diagram
• Refer to page 4-71 for printed wiring board.

MI-054 BOARD(2/3)
HDMI TX
-REF.NO.: 50,000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE

IC202
HDMI TX
IC202
SII9030CTU

IC203
AND GATE
IC203
SN74LVC1G08DCKR

IC205
3.3V REG
IC205
TK11133CSCL-G

IC207
5V REG
IC207
TK11250MCL-G

CN201

1	TMDS DATA2 +
2	TMDS DATA2 SHIELD
3	TMDS DATA2 -
4	TMDS DATA1 +
5	TMDS DATA1 SHIELD
6	TMDS DATA1 -
7	TMDS DATA0 +
8	TMDS DATA0 SHIELD
9	TMDS DATA0 -
10	TMDS CLOCK +
11	TMDS CLOCK SHIELD
12	TMDS CLOCK -
13	CEC
14	RESERVED
15	SCL
16	SDA
17	DDC/CEC GND
18	+5V POWER
19	HPD

HDMI OUT

D208 UDZSTE-176.2B

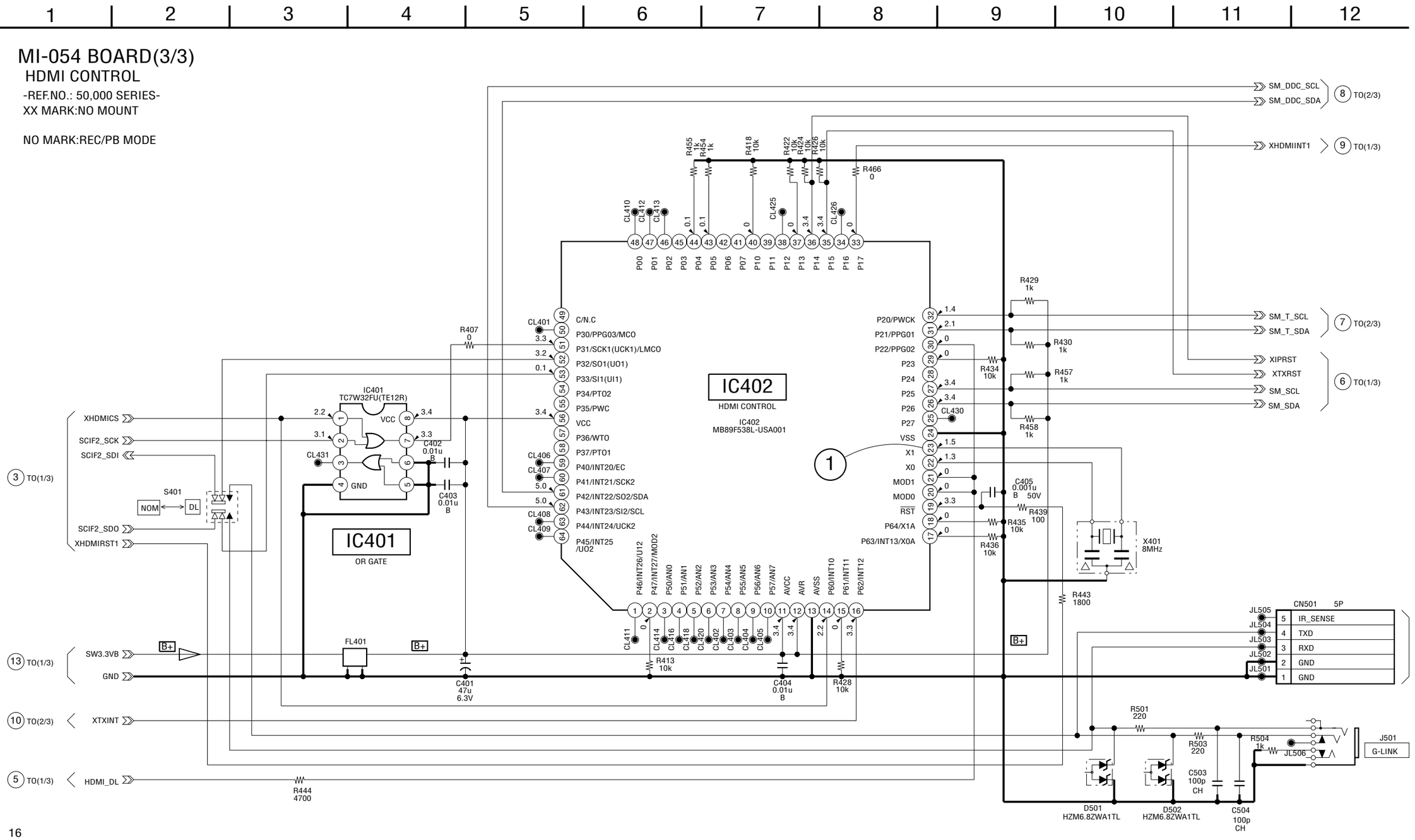
For Schematic Diagram
• Refer to page 4-71 for printed wiring board.
• Refer to page 4-4 for waveforms.

MI-054 BOARD(3/3)

HDMI CONTROL

-REF.NO.: 50,000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE

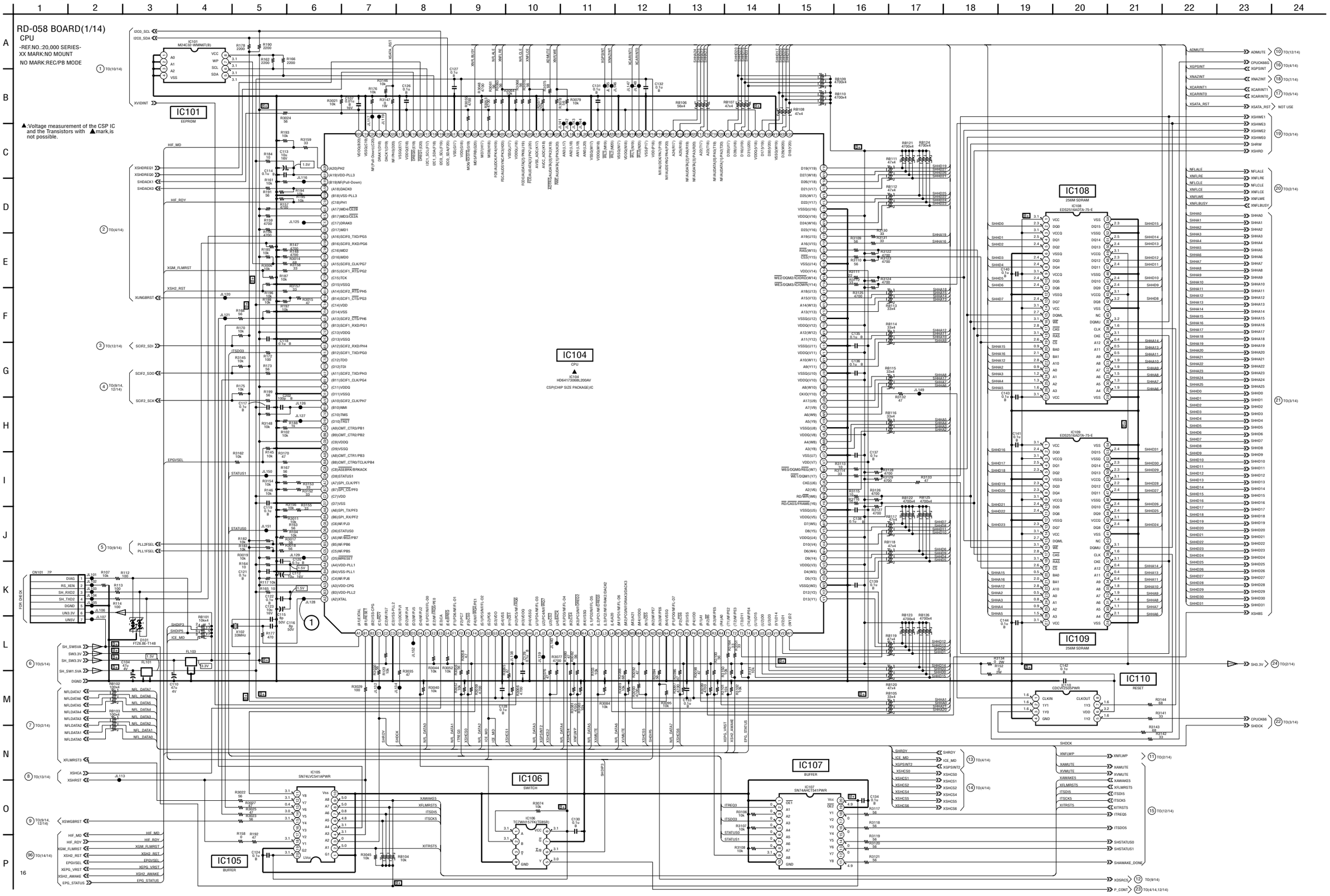


HDMI CONTROL
MI-054 (3/3)

RDR-HX715

For Schematic Diagram

- Refer to page 4-75 for printed wiring board.
- Refer to page 4-4 for waveforms.



CPU
RD-058 (1/14)

For Schematic Diagram

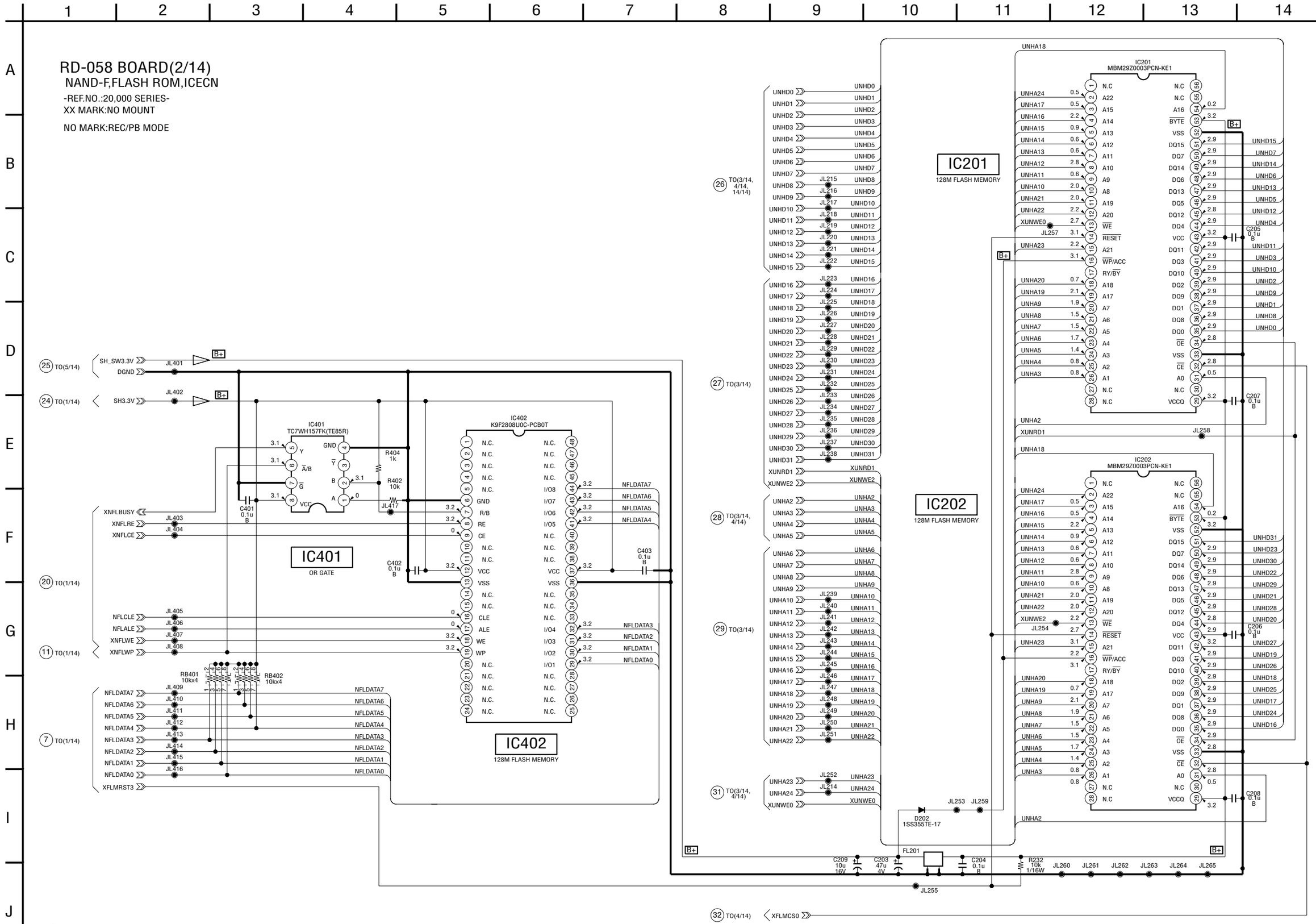
• Refer to page 4-75 for printed wiring board..

RD-058 BOARD(2/14)

NAND-F,FLASH ROM,ICECN

-REF.NO.:20,000 SERIES-
XX MARK:NO MOUNT

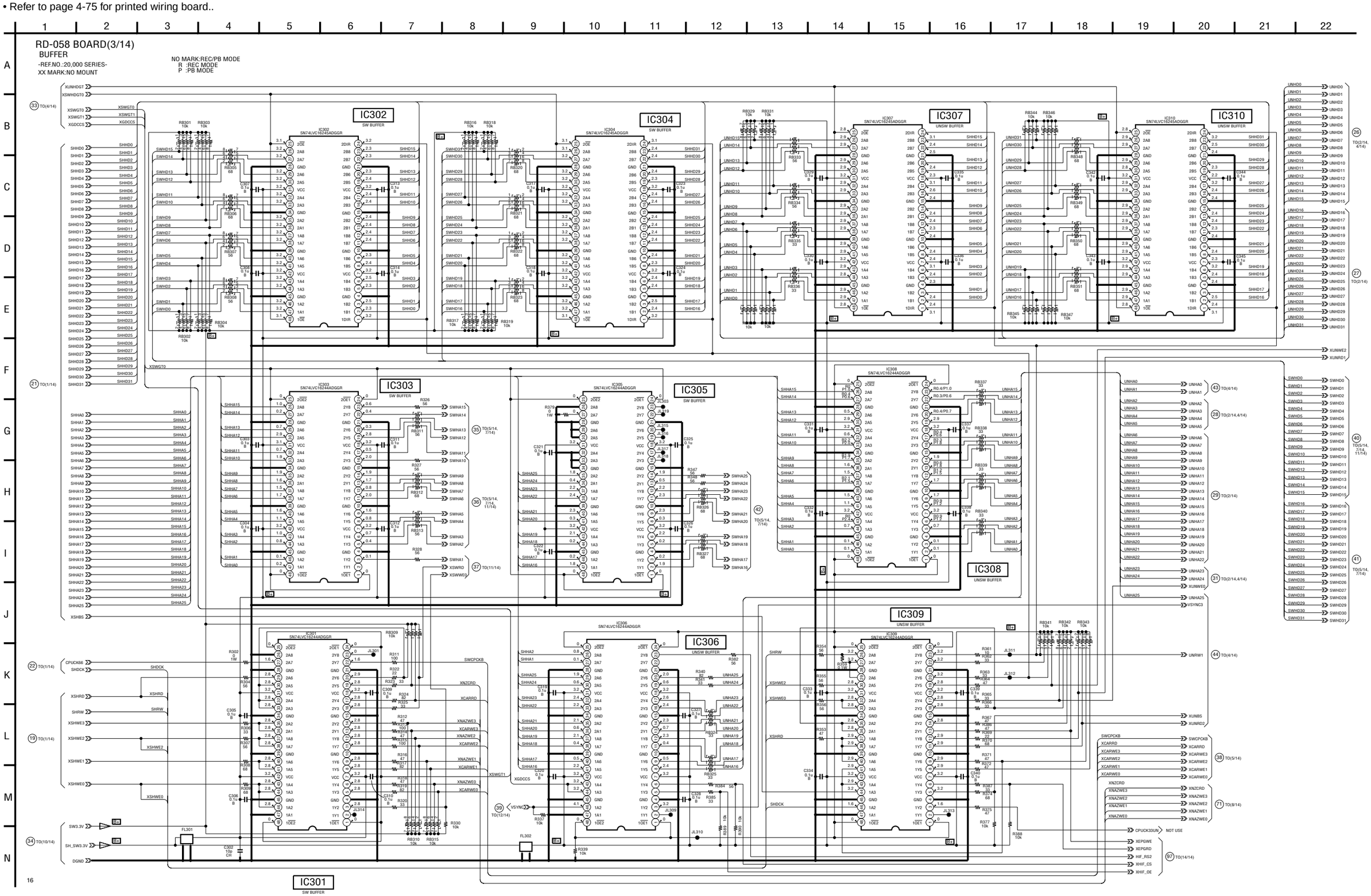
NO MARK:REC/PB MODE



NAND-F, FLASH ROM, ICECN
RD-058 (2/14)

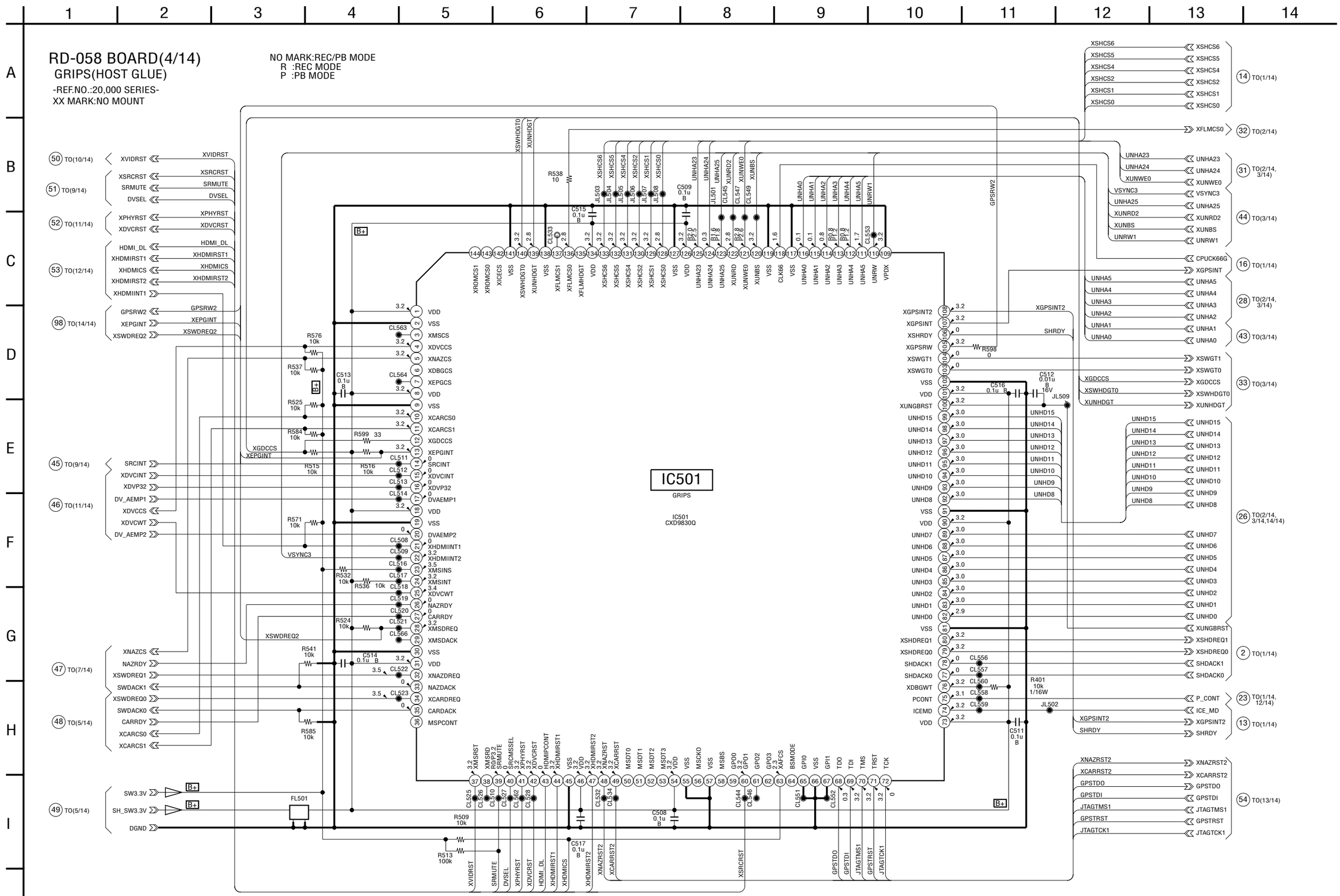
For Schematic Diagram

• Refer to page 4-75 for printed wiring board..



For Schematic Diagram

• Refer to page 4-75 for printed wiring board..



For Schematic Diagram

• Refer to page 4-75 for printed wiring board..

RD-058 BOARD(5/14)
CARIB,POWER
-REF.NO.:20,000 SERIES-
XX MARK:NO MOUNT

▲:Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.

NO MARK:REC/PB MODE

IC606
BUFFER

IC601
ATA I/F
▲
IC601
CXD4702GB
CSP(CHIP SIZE PACKAGE)IC

IC1102
1.2V REG

For Schematic Diagram
• Refer to page 4-75 for printed wiring board..

RD-058 BOARD(6/14)
CARIB DDR
-REF.NO.:20,000 SERIES-
XX MARK:NO MOUNT

▲:Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
* :Cannot be measured

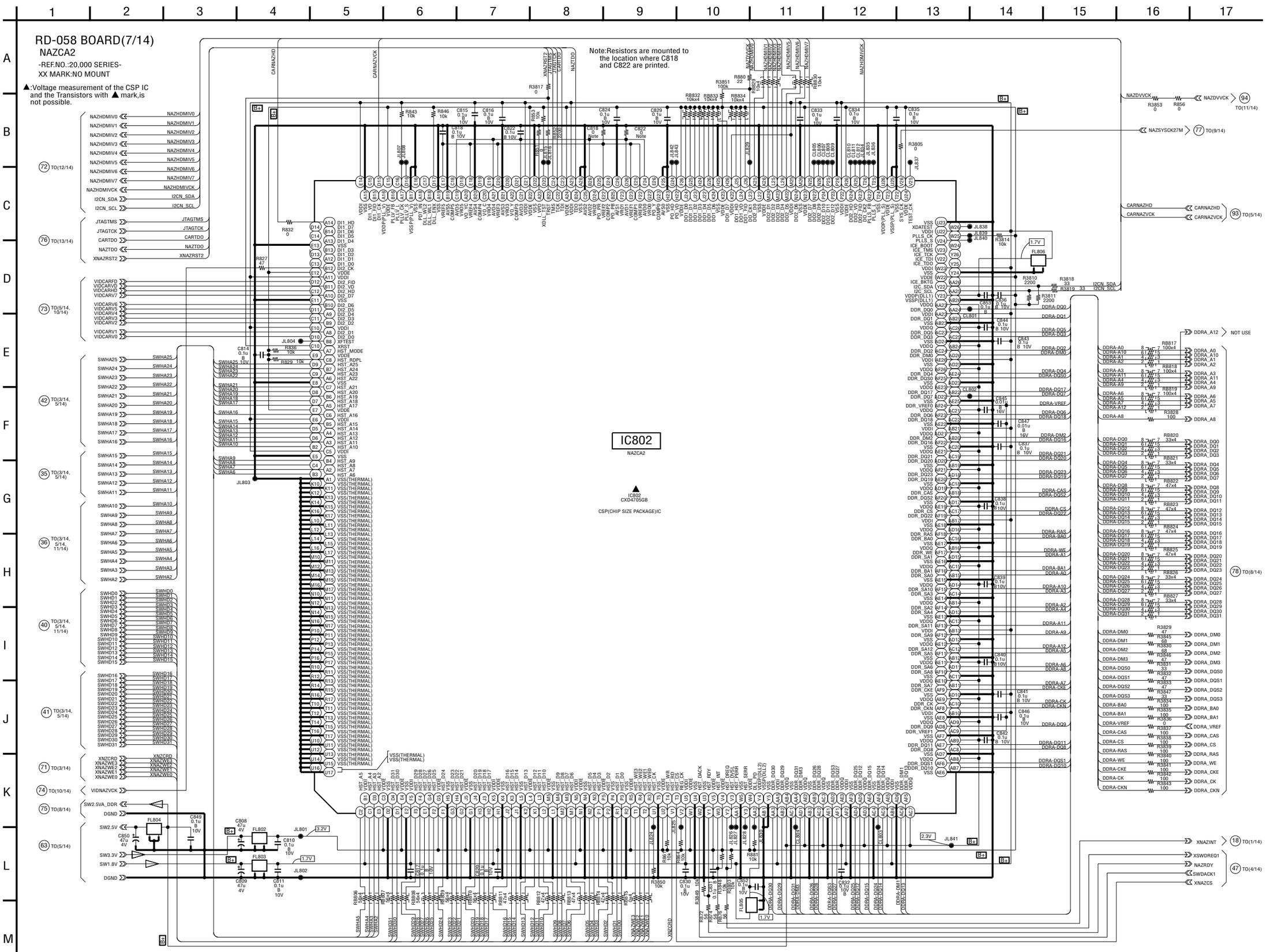
IC701
128MX32 DDR
▲ IC701 EDD1232AABH-7A-E CSP(CHIP SIZE PACKAGE)IC

IC702
512MX16 DDR
IC702 EDD5116ADTA-7E-E

RDR-HX715

For Schematic Diagram

• Refer to page 4-75 for printed wiring board..



NAZCA2
RD-058 (7/14)

For Schematic Diagram

• Refer to page 4-75 for printed wiring board..

RD-058 BOARD(8/14)

NAZCA2 DDR

-REF.NO.:20,000 SERIES-

XX MARK:NO MOUNT

▲:Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.

IC901

NAZCA2 DDR

▲

IC901

EDD1232AABH-7A-E

CSP(CHIP SIZE PACKAGE)IC

78 TO(7/14)

75 TO(7/14)

DGND

SW2.5VA_DDR

B+

2.3V

R907 10k 1/10W ± 0.5%

R908 10k 1/10W ± 0.5%

JL901

1.2V

C901 0.1u B

C902 0.1u B

C903 0.1u B

C904 0.1u B

C905 0.1u B

C906 0.1u B

C907 0.1u B

C908 0.1u B

C909 0.1u B

C910 0.1u B

C911 0.1u B

C912 0.1u B

R906 0 1W

R909 0 1W

R904 10

R902 22

R901 22

R903 10

R901 10

R902 10

R903 22

R904 22

R905 22

R906 22

R907 10

R908 10

DDRA_CK

DDRA_CKN

DDRA_CKE

DDRA_CS

DDRA_RAS

DDRA_CAS

DDRA_WE

DDRA_DQS0

DDRA_DQS1

DDRA_DQS2

DDRA_DQS3

DDRA_DM0

DDRA_DM1

DDRA_DM2

DDRA_DM3

DDRA_BA0

DDRA_BA1

DDRA_A0

DDRA_A1

DDRA_A2

DDRA_A3

DDRA_A4

DDRA_A5

DDRA_A6

DDRA_A7

DDRA_A8

DDRA_A9

DDRA_A10

DDRA_A11

DDRA_DQ31

DDRA_DQ30

DDRA_DQ29

DDRA_DQ28

DDRA_DQ27

DDRA_DQ26

DDRA_DQ25

DDRA_DQ24

DDRA_DQ23

DDRA_DQ22

DDRA_DQ21

DDRA_DQ20

DDRA_DQ19

DDRA_DQ18

DDRA_DQ17

DDRA_DQ16

DDRA_DQ15

DDRA_DQ14

DDRA_DQ13

DDRA_DQ12

DDRA_DQ11

DDRA_DQ10

DDRA_DQ9

DDRA_DQ8

DDRA_DQ7

DDRA_DQ6

DDRA_DQ5

DDRA_DQ4

DDRA_DQ3

DDRA_DQ2

DDRA_DQ1

DDRA_DQ0

DDRA_VREF

CLK

CLK

CKE

CS

RAS

CAS

WE

DQS0

DQS1

DQS2

DQS3

DM0

DM1

DM2

DM3

BA0

BA1

A0

A1

A2

A3

A4

A5

A6

A7

A8/AP

A9

A10

A11

NC

NC

NC

NC

NC

NC

NC

NC

VSS

VREF

VDDQ

VDD

MCL_DSF

DQ0

DQ1

DQ2

DQ3

DQ4

DQ5

DQ6

DQ7

DQ8

DQ9

DQ10

DQ11

DQ12

DQ13

DQ14

DQ15

DQ16

DQ17

DQ18

DQ19

DQ20

DQ21

DQ22

DQ23

DQ24

DQ25

DQ26

DQ27

DQ28

DQ29

DQ30

DQ31

16

For Schematic Diagram
- Refer to page 4-75 for printed wiring board.
- Refer to page 4-4 for waveforms.

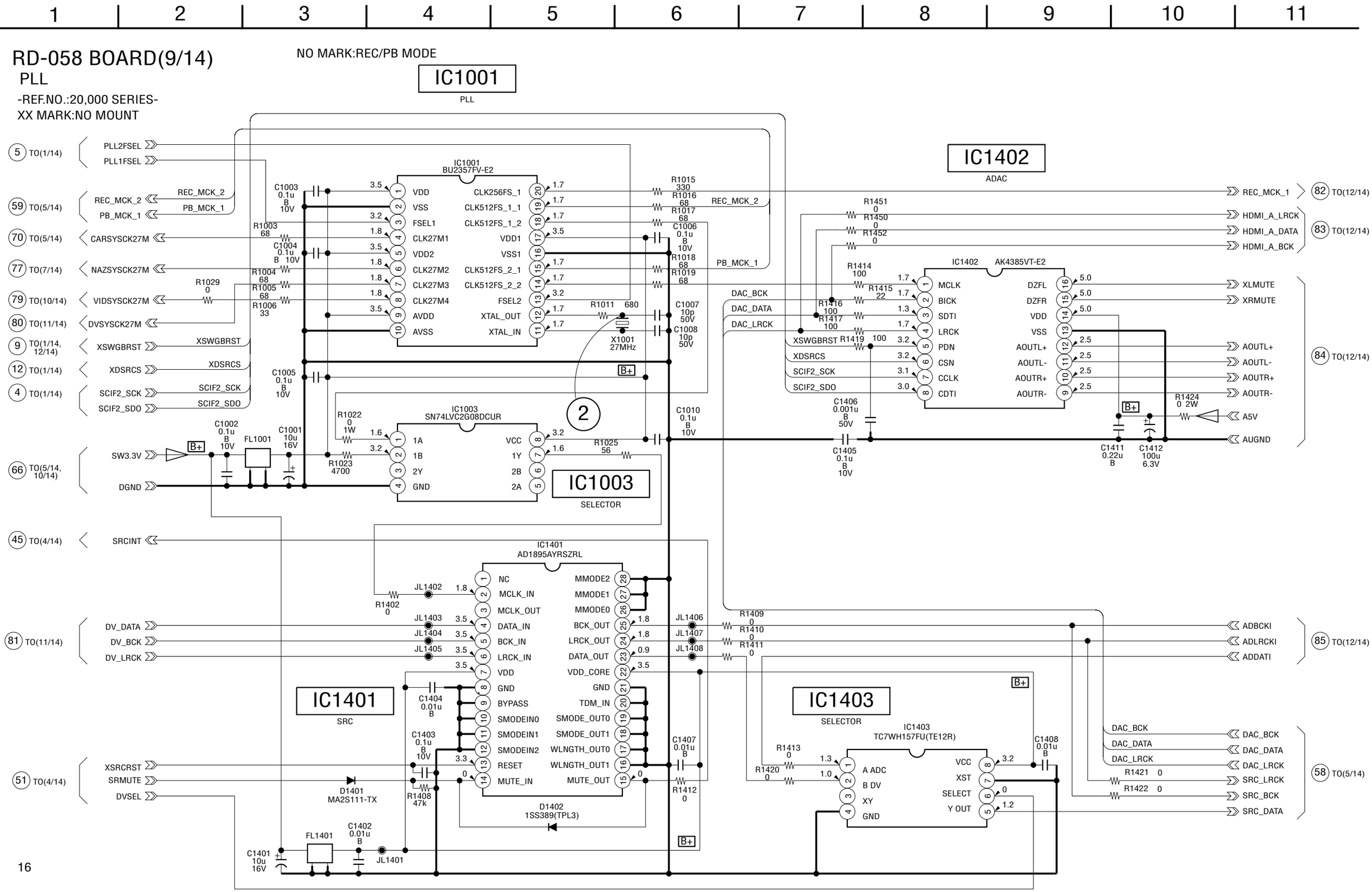
RD-058 BOARD(9/14)

PLL

-REF.NO.:20,000 SERIES-

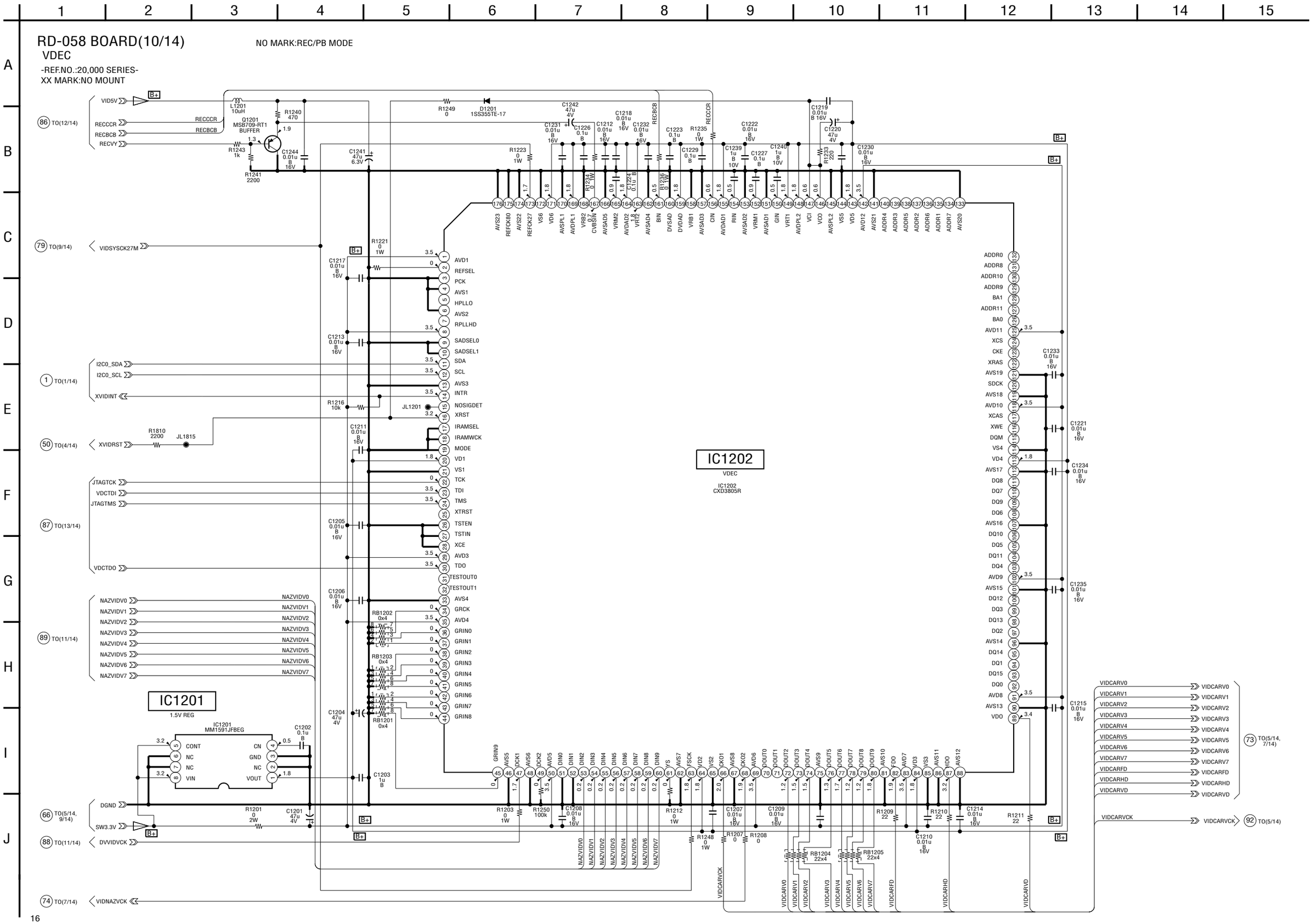
XX MARK:NO MOUNT

NO MARK:REC/PB MODE



For Schematic Diagram

• Refer to page 4-75 for printed wiring board..



For Schematic Diagram

- Refer to page 4-75 for printed wiring board.
- Refer to page 4-4 for waveforms.

RD-058 BOARD(11/14)

DV

-REF.NO.:20,000 SERIES-

XX MARK:NO MOUNT

▲Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

IC1601
DV
▲IC1601
UPD72893BF1-FN3-A
CSP(CHIP SIZE PACKAGE)IC

IC1901
DV INTERFACE
IC1901
UPD72852AGB-BEU-A

IC1602
SDRAM

IC1604
UP CONV

IC1605
CLK

IC1606
PLL

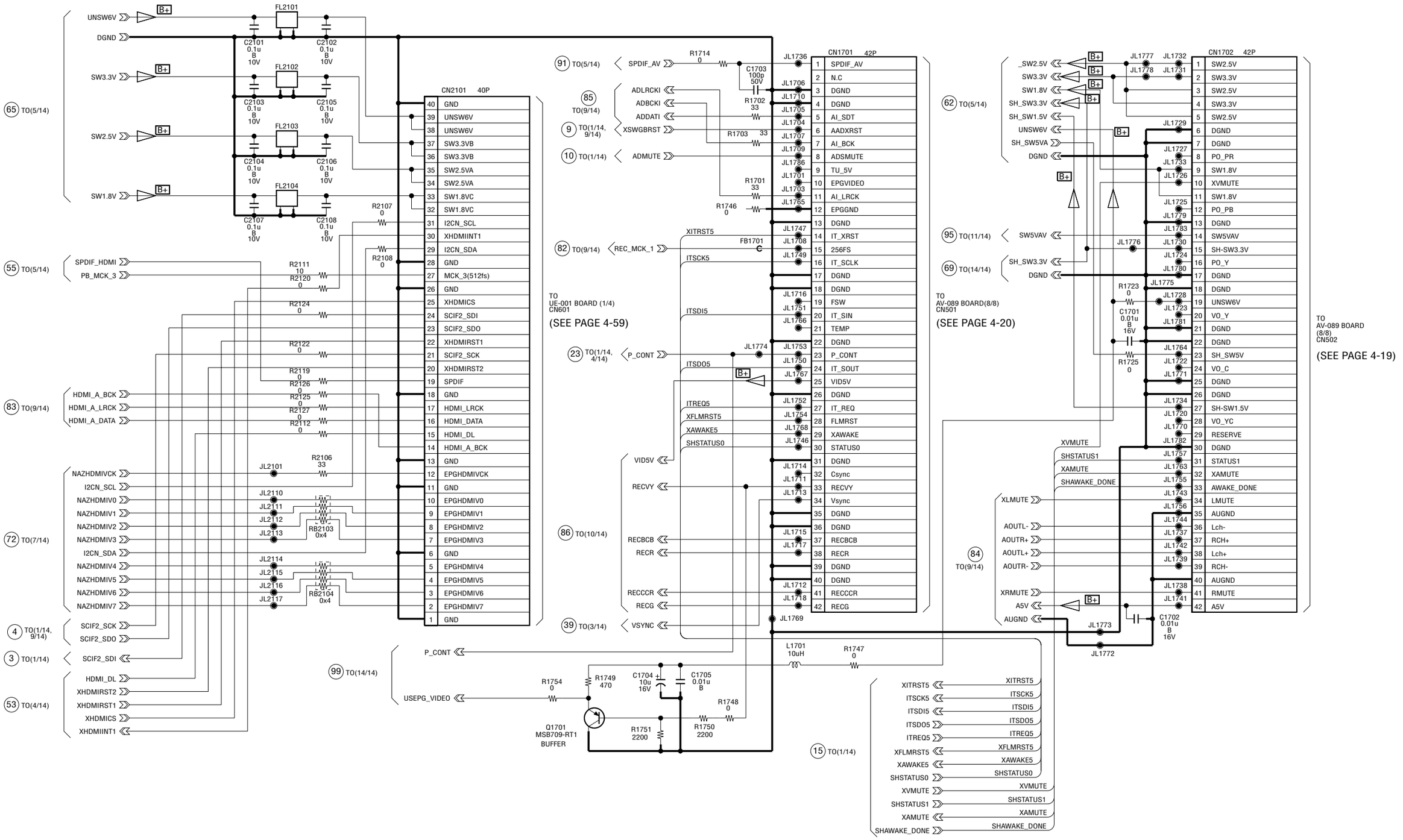
IC1607
3.3V REG

For Schematic Diagram
• Refer to page 4-75 for printed wiring board..

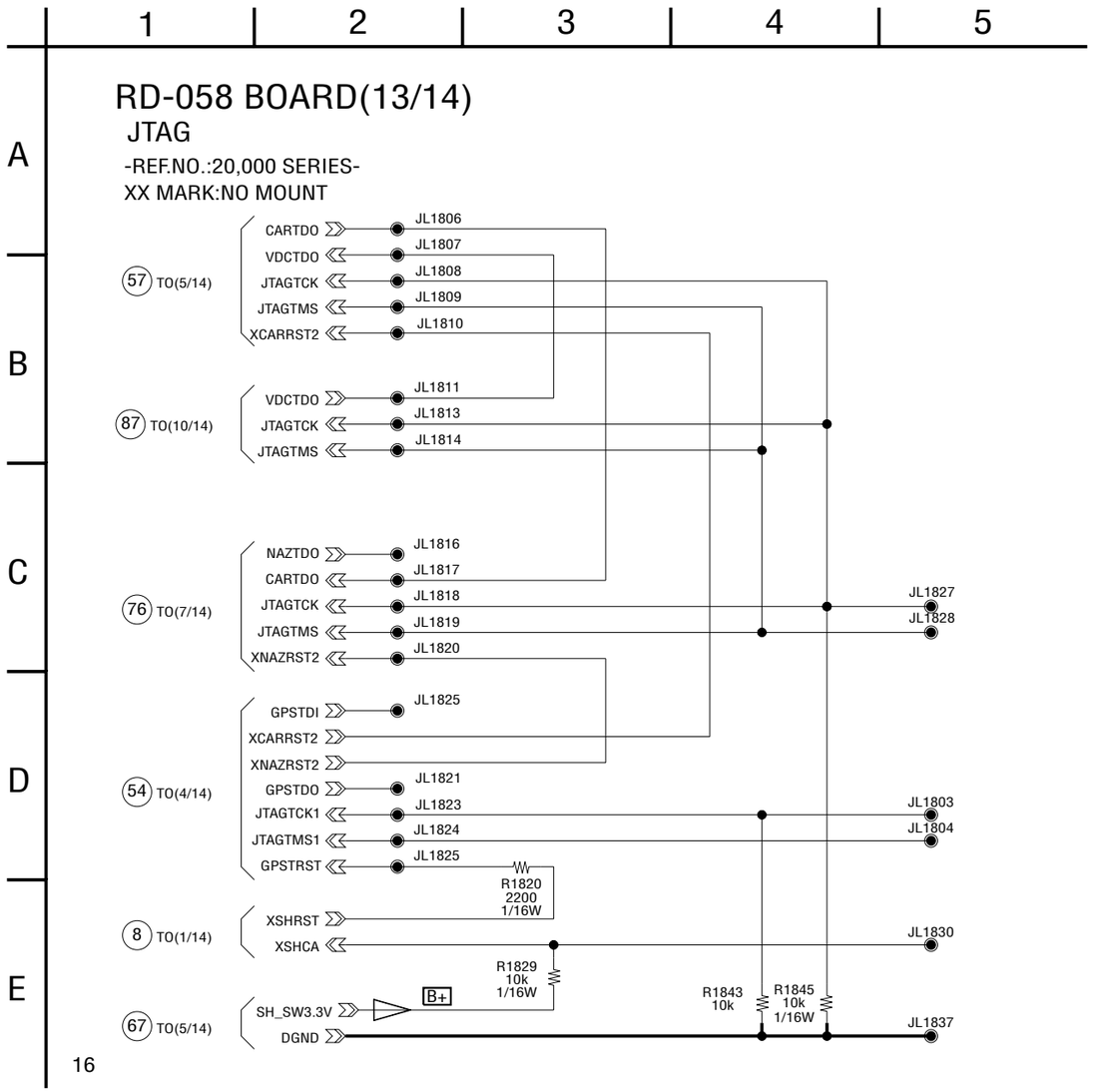
RD-058 BOARD(12/14)

AV CONNECTOR, HDMI-IF

-REF.NO.:20,000 SERIES-
XX MARK:NO MOUNT



For Schematic Diagram
• Refer to page 4-75 for printed wiring board..



For Schematic Diagram
• Refer to page 4-75 for printed wiring board..

RD-058 BOARD(14/14)

US EPG-IF

-REF.NO.:20,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

IC2401

EPG IF

IC2401
SN74LVC16245ADGGR

RB2403 33x4
RB2404 33x4
RB2405 33x4
RB2406 33x4
RB2407 82x4
RB2408 82x4
RB2409 82x4
RB2410 82x4
RB2411 10kx4
RB2412 10kx4
RB2413 10kx4
RB2414 10kx4

C2403 0.1u B
C2404 0.1u B
C2407 0.1u B
C2408 0.1u B

26 TO (2/14, 3/14, 4/14)

UNHD0 UNHD1 UNHD2 UNHD3 UNHD4 UNHD5 UNHD6 UNHD7 UNHD8 UNHD9 UNHD10 UNHD11 UNHD12 UNHD13 UNHD14 UNHD15

69 TO(12/14)

SH_SW3.3V
DGND

99 TO(12/14)

P_CONT
USEPG_VIDEO

96 TO(1/14)

XEPG_VRST
XGM_FLMRST
XSH2_RST
EPG_STATUS
XSH2_AWAKE
EPGVSEL
HIF_RDY
HIF_MD
GPSRW2

98 TO(4/14)

XEPGINT
XSWDREQ2
XEPGRD
XHIF_CS
XEPGWE
XHIF_OE
HIF_RS2

97 TO(3/14)

HIF_D0 HIF_D1 HIF_D2 HIF_D3 HIF_D4 HIF_D5 HIF_D6 HIF_D7 HIF_D8 HIF_D9 HIF_D10 HIF_D11 HIF_D12 HIF_D13 HIF_D14 HIF_D15

R2442 0
R2418 0
R2419 0
R2414 0
R2420 0
R2421 0
R2443 0
R2415 0
R2416 0
R2422 0
R2417 0
R2423 0
R2424 0
R2425 0
R2427 0
R2428 0
R2429 0
R2426 0

CN2402 40P

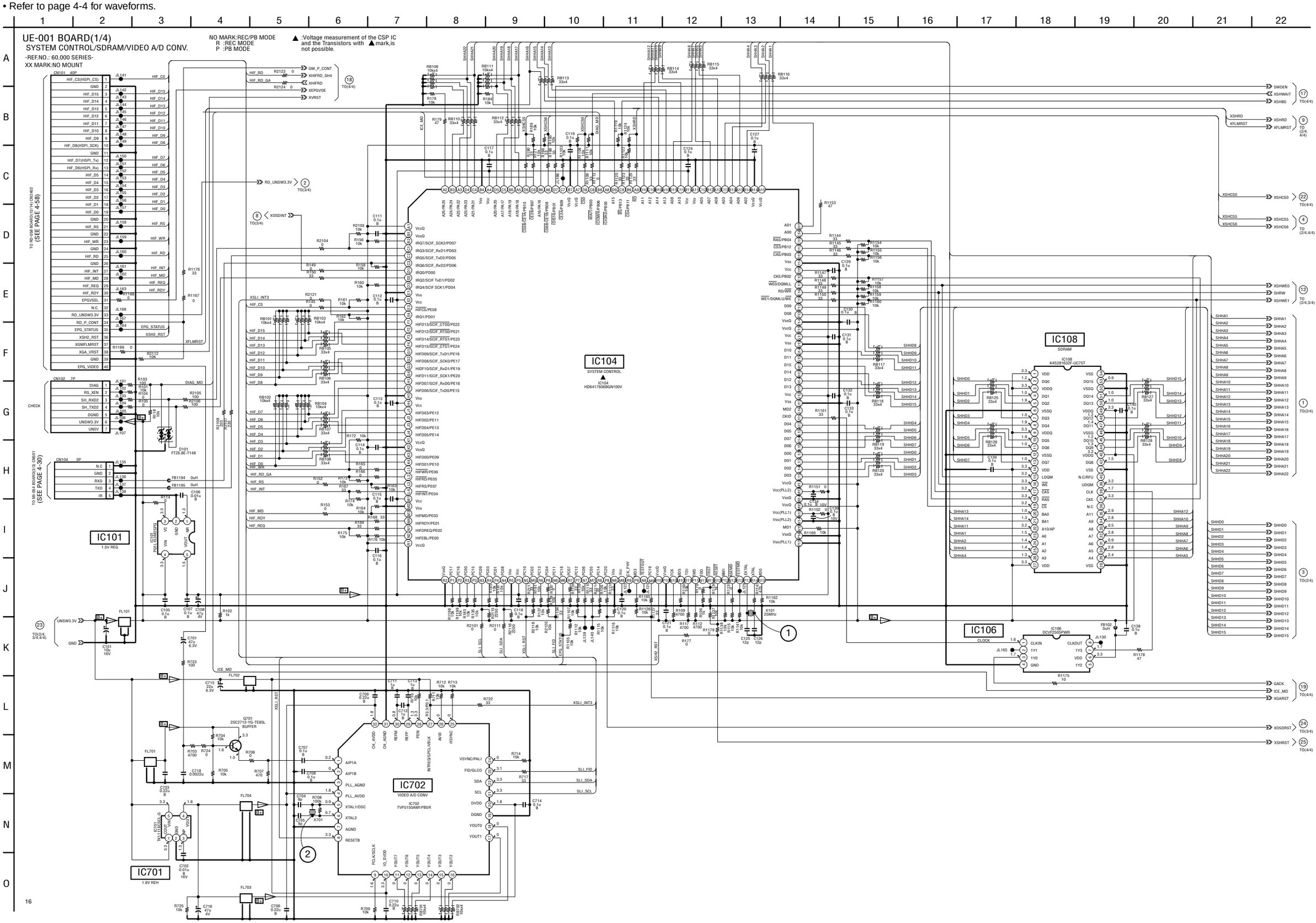
1	EPG_VIDEO
2	GND
3	XGA_VRST
4	XGMFLMRST
5	XSH2_RST
6	EPG_STATUS
7	P_CONT
8	RD_UNSW3.3V
9	XSH2_AWAKE
10	EPGVSEL
11	HIF_RDY
12	HIF_REQ
13	HIF_MD
14	HIF_INT
15	GND
16	HIF_RD
17	GND
18	HIF_WR
19	GND
20	HIF_RS
21	GND
22	HIF_D0
23	HIF_D1
24	HIF_D2
25	HIF_D3
26	HIF_D4
27	HIF_D5
28	HIF_D6(HSPI_Rx)
29	HIF_D7(HSPI_Tx)
30	GND
31	HIF_D8(HSPI_SCK)
32	HIF_D9
33	HIF_D10
34	HIF_D11
35	HIF_D12
36	HIF_D13
37	HIF_D14
38	HIF_D15
39	GND
40	HIF_CS(HSPI_CS)

TO UE-001 BOARD CN101
(SEE PAGE 4-59)

16

For Schematic Diagram

• Refer to page 4-4 for waveforms.



SYSTEM CONTROL / SDRAM / VIDEO A/D CONV.
UE-001 (1/4)

UE-001 BOARD(2/4)
FLASH ROM/BUFFER

-REF.NO.: 60,000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

IC201
BUFFER

IC205
64MBit FLASH MEMORY

IC202
BUFFER

IC203
BUFFER

FLASH ROM / BUFFER
UE-001 (2/4)

UE-001 BOARD(3/4)
SDRAM
-REF.NO.: 60,000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

IC304
IC304
TL751A1-LFC

IC309
SDRAM
IC309
HY57V161610ETP-7DR

IC310
SDRAM
IC310
HY57V161610ETP-7DR

IC313
CLOCK
IC313
DCVF2505PWR

IC314
CLOCK
IC314
DCVF2505PWR

IC501
UNSW3.3V REG
IC501
PQ070XZ01ZPH

IC503
SW3.3V REG
IC503
PQ070XZ01ZPH

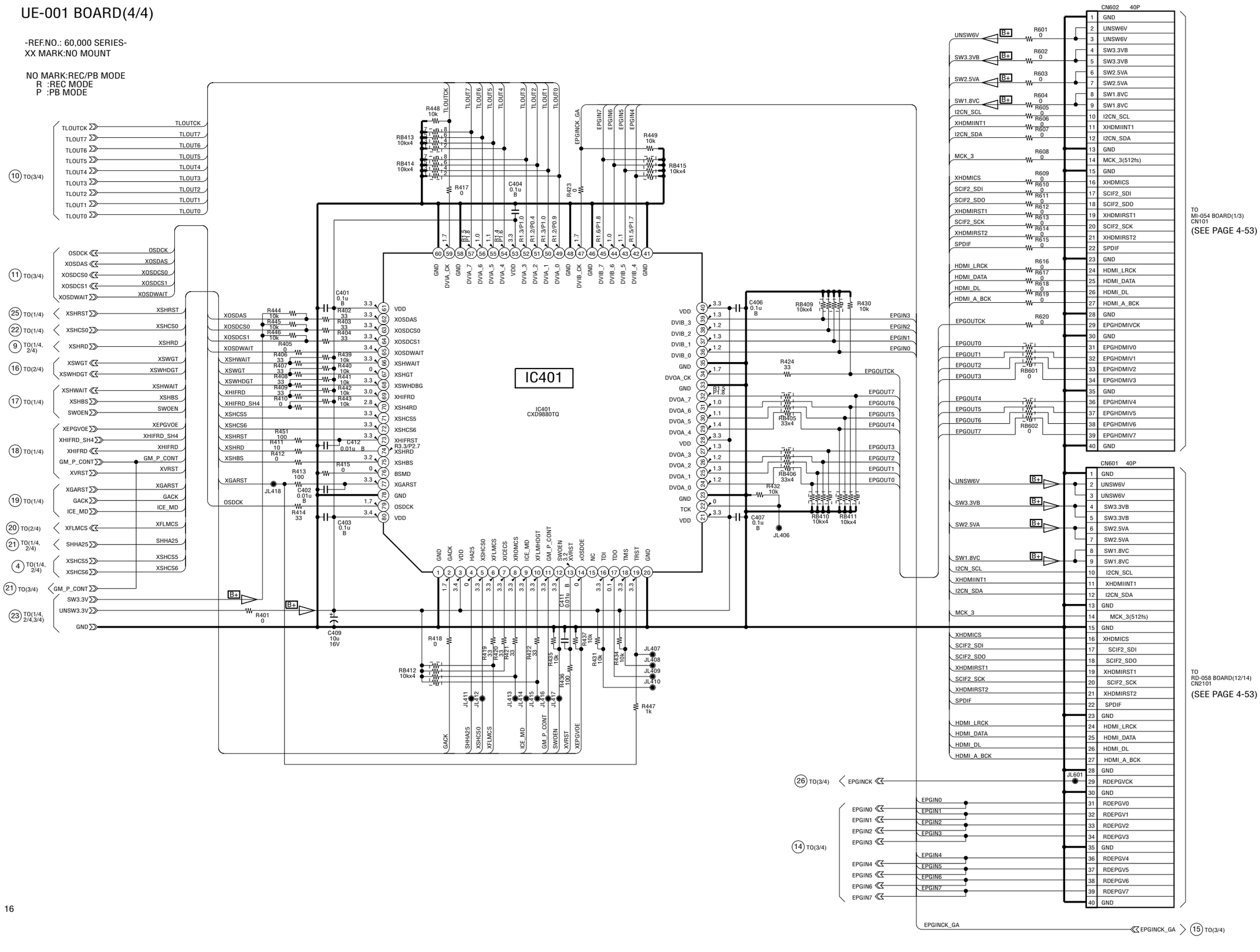
IC504
SW1.8V REG
IC504
TK11218CMDL-G

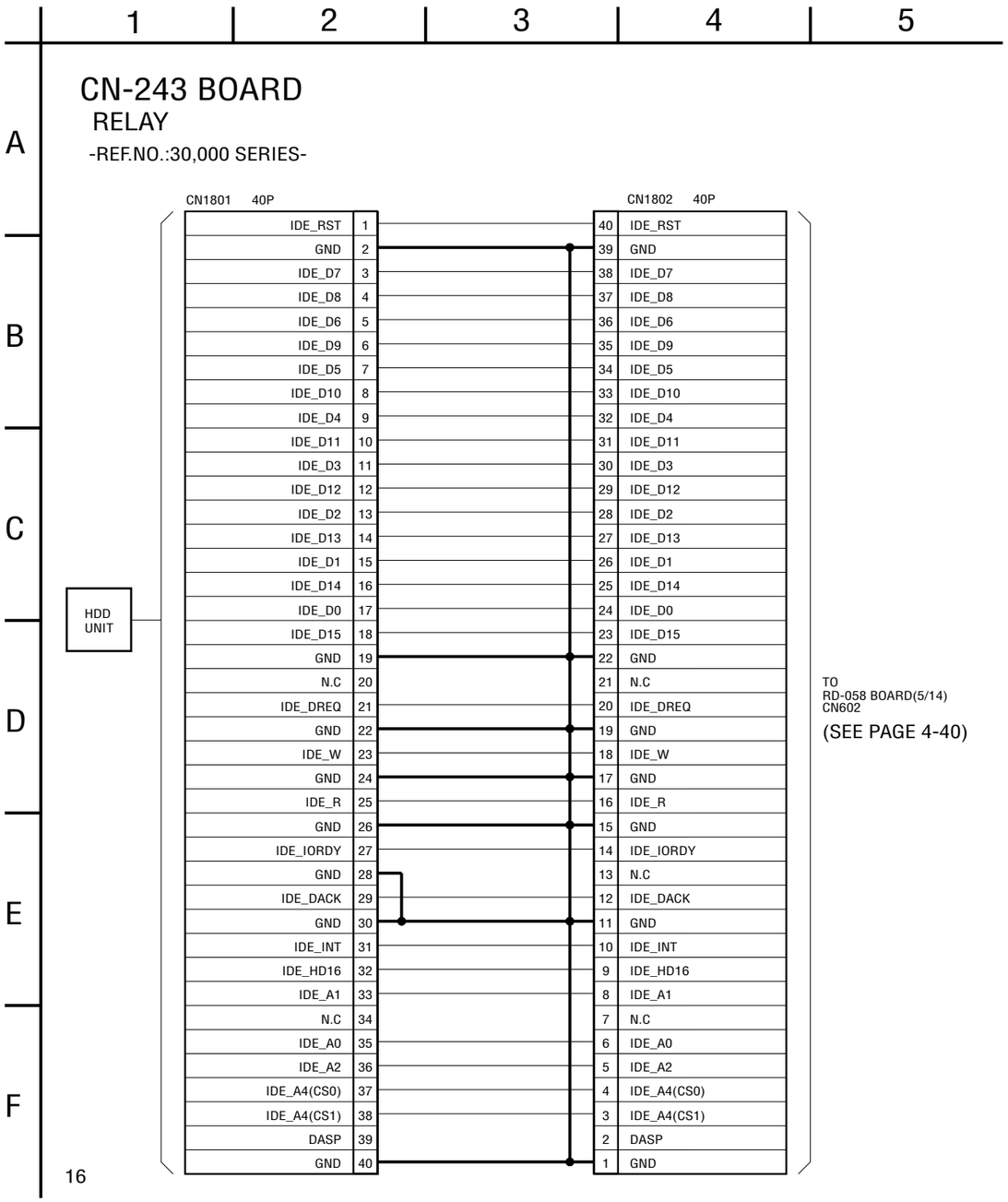
TO POWER SUPPLY CN4 (SEE PAGE 4-70)

UE-001 BOARD(4/4)

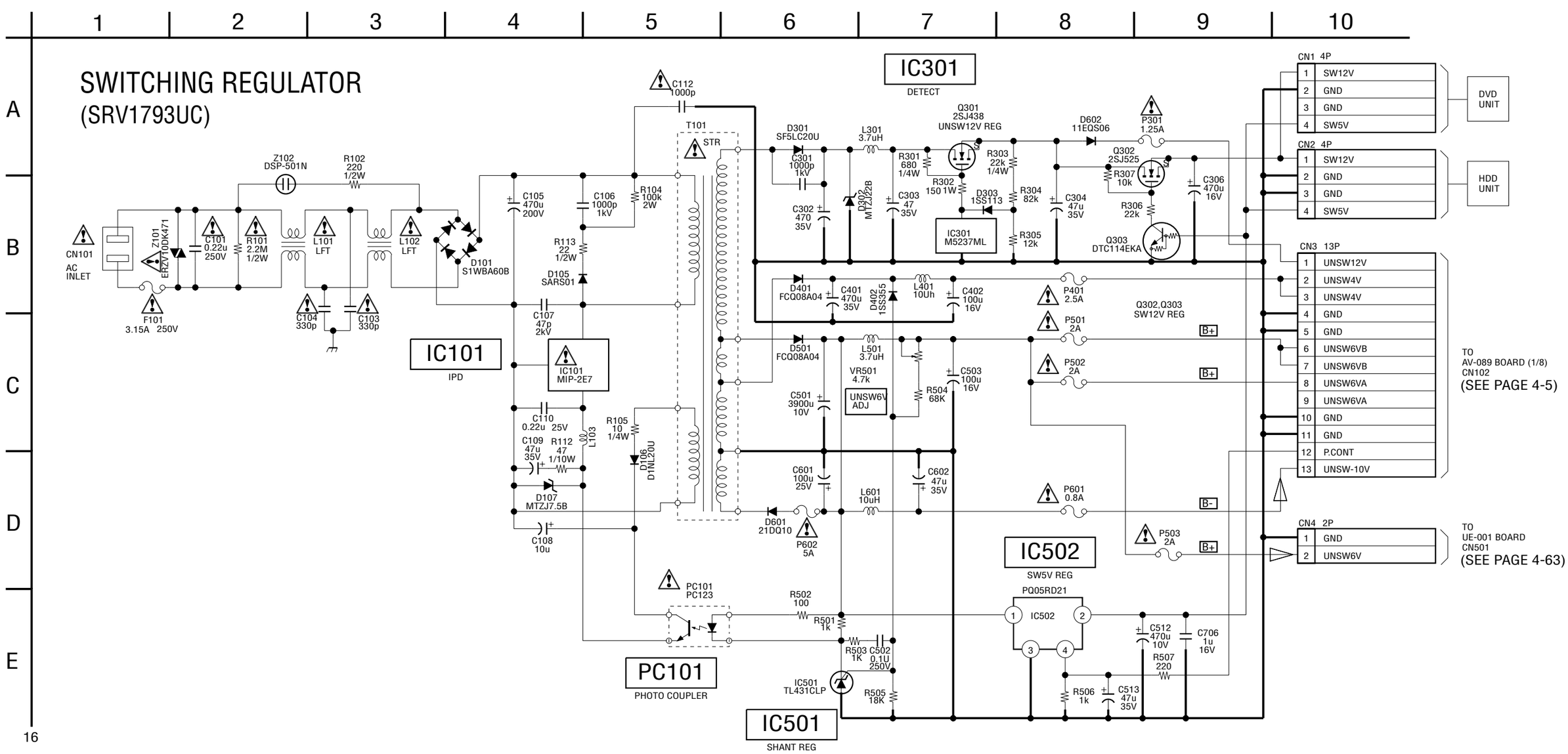
-REF.NO.: 60,000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE




1
2
3
4
5
A
B
C
D
E
F
16
CN-243 BOARD
RELAY
-REF.NO.:30,000 SERIES-
CN1801 40P
CN1802 40P
HDD UNIT
IDE_RST 1 — 40 IDE_RST
GND 2 — 39 GND
IDE_D7 3 — 38 IDE_D7
IDE_D8 4 — 37 IDE_D8
IDE_D6 5 — 36 IDE_D6
IDE_D9 6 — 35 IDE_D9
IDE_D5 7 — 34 IDE_D5
IDE_D10 8 — 33 IDE_D10
IDE_D4 9 — 32 IDE_D4
IDE_D11 10 — 31 IDE_D11
IDE_D3 11 — 30 IDE_D3
IDE_D12 12 — 29 IDE_D12
IDE_D2 13 — 28 IDE_D2
IDE_D13 14 — 27 IDE_D13
IDE_D1 15 — 26 IDE_D1
IDE_D14 16 — 25 IDE_D14
IDE_D0 17 — 24 IDE_D0
IDE_D15 18 — 23 IDE_D15
GND 19 — 22 GND
N.C 20 — 21 N.C
IDE_DREQ 21 — 20 IDE_DREQ
GND 22 — 19 GND
IDE_W 23 — 18 IDE_W
GND 24 — 17 GND
IDE_R 25 — 16 IDE_R
GND 26 — 15 GND
IDE_IORDY 27 — 14 IDE_IORDY
GND 28 — 13 N.C
IDE_DACK 29 — 12 IDE_DACK
GND 30 — 11 GND
IDE_INT 31 — 10 IDE_INT
IDE_HD16 32 — 9 IDE_HD16
IDE_A1 33 — 8 IDE_A1
N.C 34 — 7 N.C
IDE_A0 35 — 6 IDE_A0
IDE_A2 36 — 5 IDE_A2
IDE_A4(CS0) 37 — 4 IDE_A4(CS0)
IDE_A4(CS1) 38 — 3 IDE_A4(CS1)
DASP 39 — 2 DASP
GND 40 — 1 GND
TO
RD-058 BOARD(5/14)
CN602
(SEE PAGE 4-40)

SWITCHING REGULATOR
(SRV1793UC)

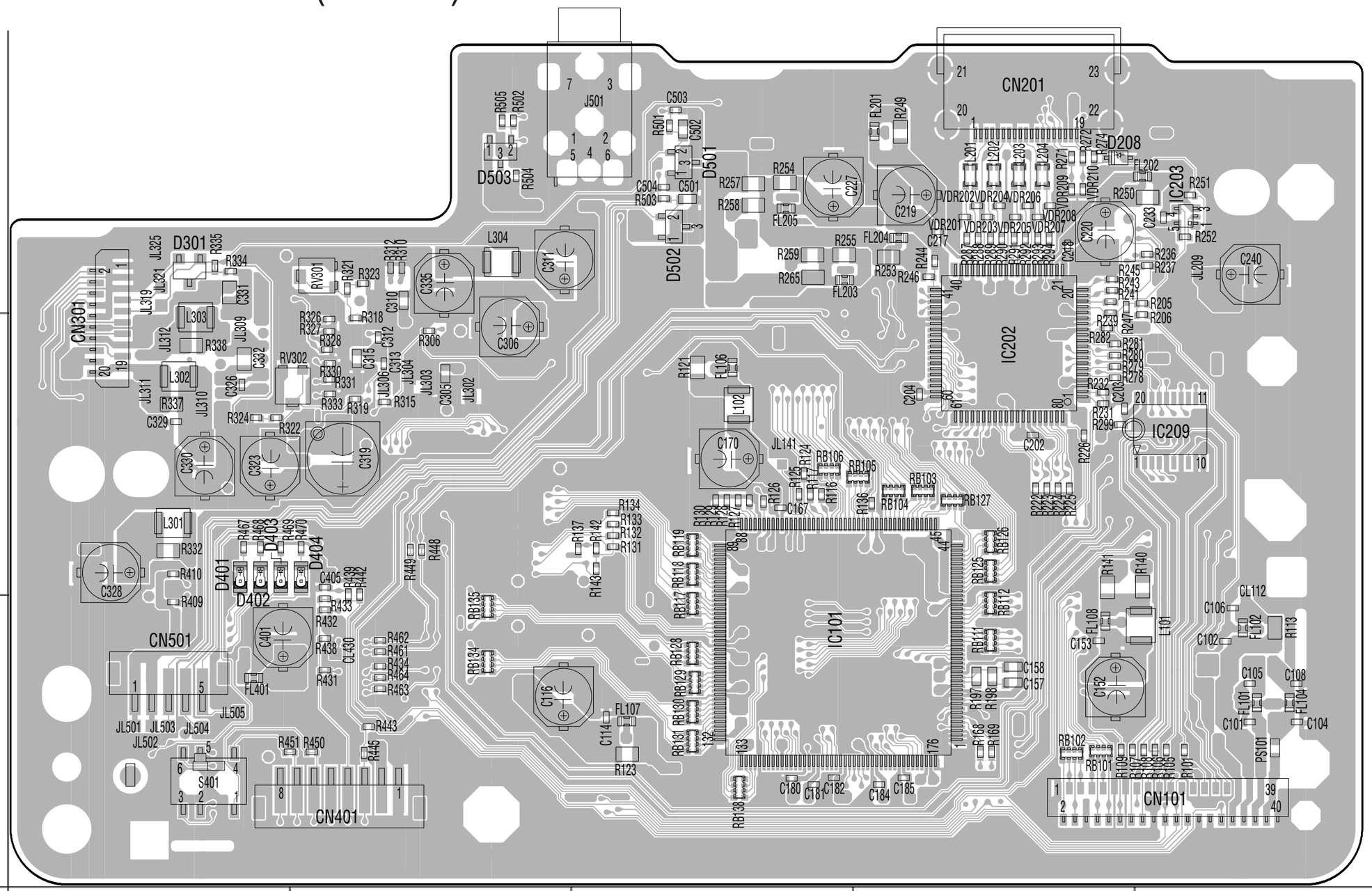


Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-3. PRINTED WIRING BOARDS

• : Uses unleaded solder.

MI-054 BOARD(SIDE A)



MI-054 BOARD (SIDE A)

CN101	C-5
CN201	A-4
CN301	B-1
CN401	C-2
CN501	C-1
D208	A-4
D301	A-1
D401	B-1
D402	C-1
D403	B-1
D404	B-2
D501	A-3
D502	A-3
D503	A-2
IC101	C-3
IC202	B-4
IC203	A-5
IC209	B-5

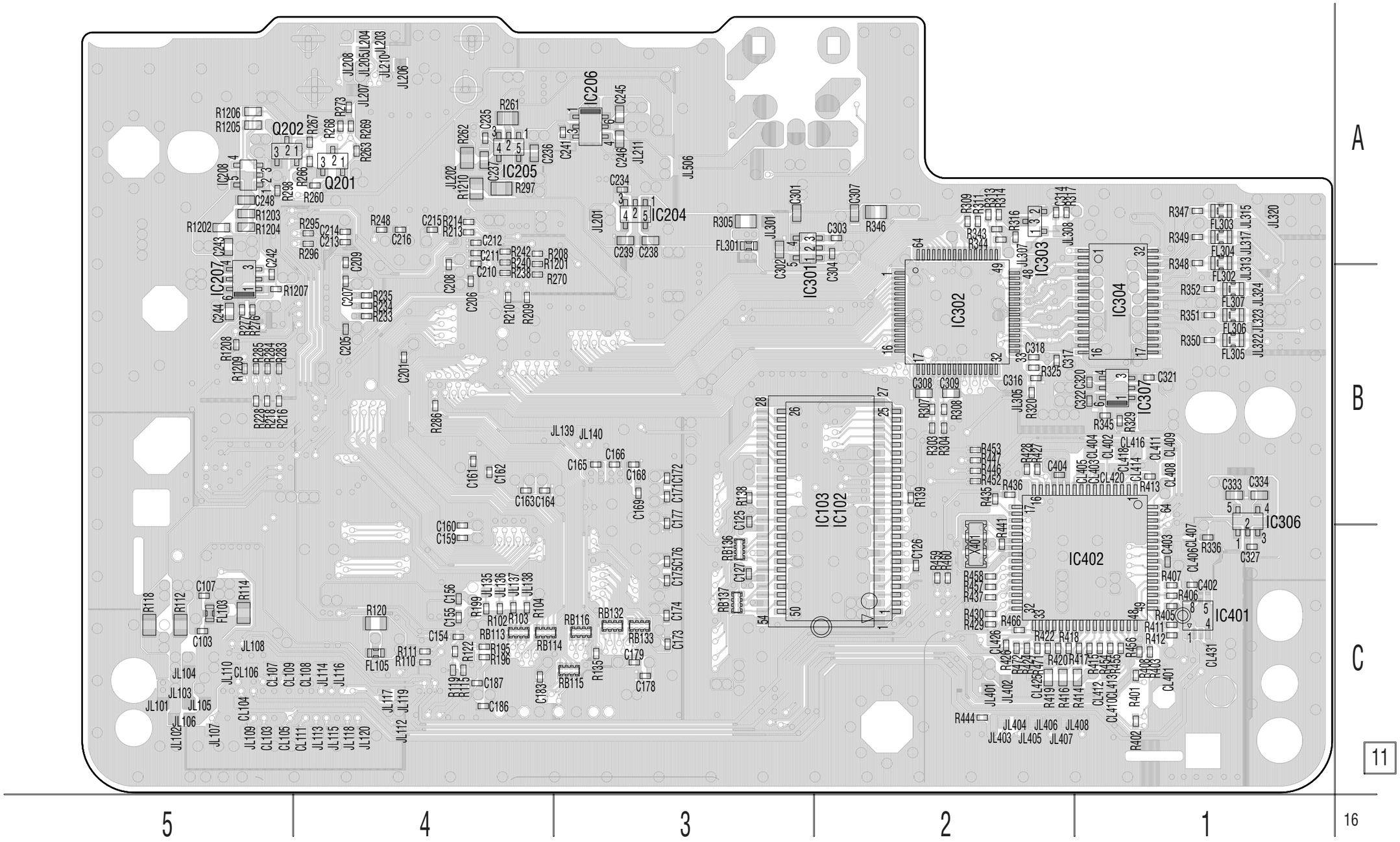
• : Uses unleaded solder.

MI-054 BOARD (SIDE B)

IC102 B-2
IC103 B-2
IC204 A-3
IC205 A-4
IC206 A-3
IC207 B-5
IC208 A-5
IC301 B-3
IC302 B-2
IC303 A-2
IC304 B-1
IC306 B-1
IC307 B-1
IC401 C-1
IC402 C-1

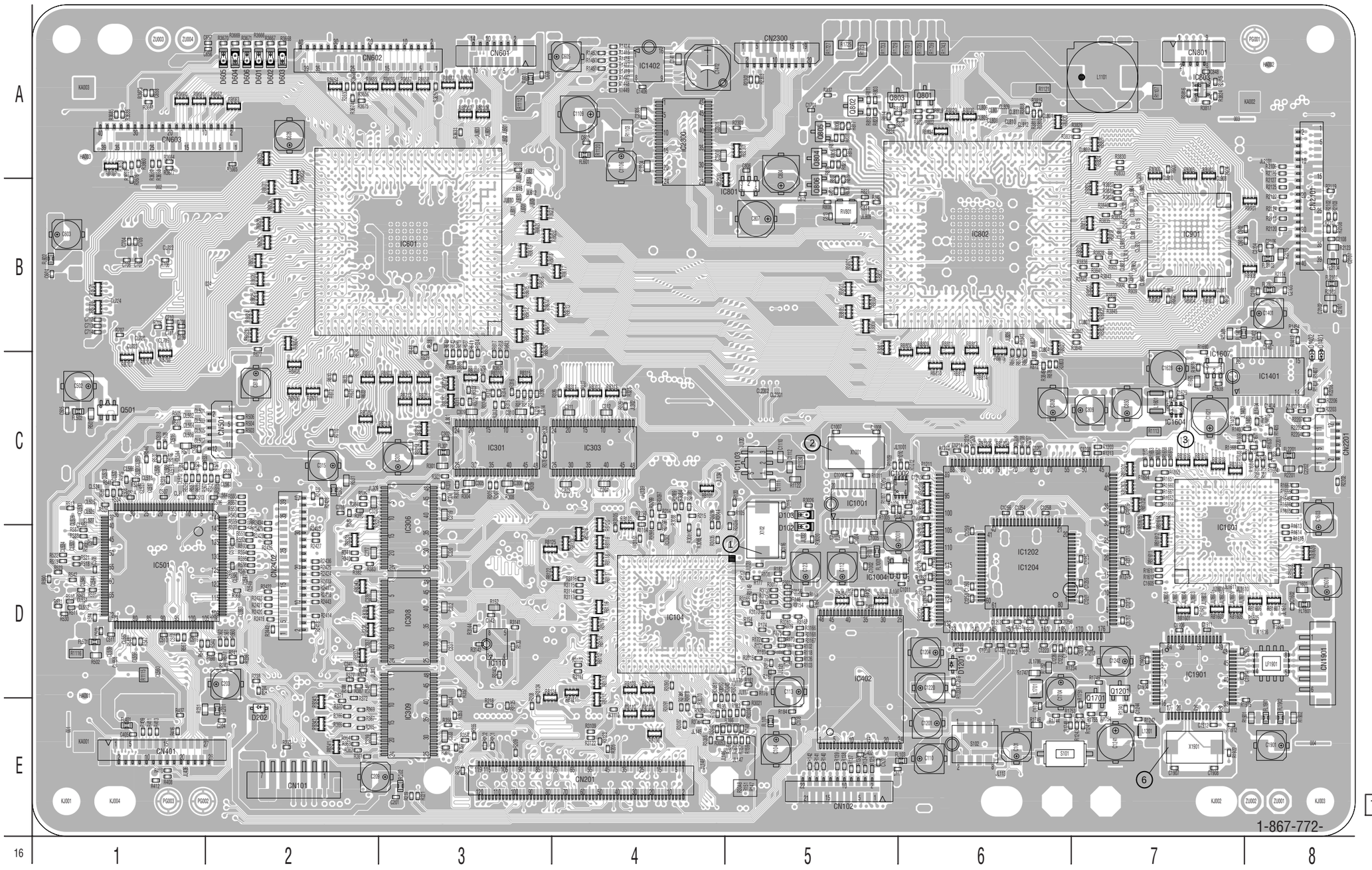
Q201 A-4
Q202 A-5

MI-054 BOARD(SIDE B)



- : Uses unleaded solder.

RD-058 BOARD (SIDE A)



RD-058 BOARD (SIDE A)

CN102	E-5
CN201	E-4
CN401	E-1
CN601	A-3
CN801	A-7
CN2101	B-8
D102	D-5
D103	D-5
D202	E-2
D601	A-2
D602	A-2
D603	A-2
D604	A-2
D605	A-2
D606	A-2
D1201	D-6
D1401	B-8
D1402	B-8
IC104	D-4
IC110	D-3
IC301	C-3
IC303	C-4
IC306	D-3
IC308	D-3
IC309	E-3
IC402	D-5
IC501	D-1
IC601	B-3
IC802	B-6
IC803	A-7
IC901	B-7
IC1001	D-5
IC1002	C-5
IC1202	D-6
IC1401	C-8
IC1402	A-4
IC1601	D-7
IC1604	C-7
IC1607	C-7
IC1901	E-7
Q1201	E-7
Q1701	E-7

• : Uses unleaded solder.

RD-058 BOARD (SIDE B)

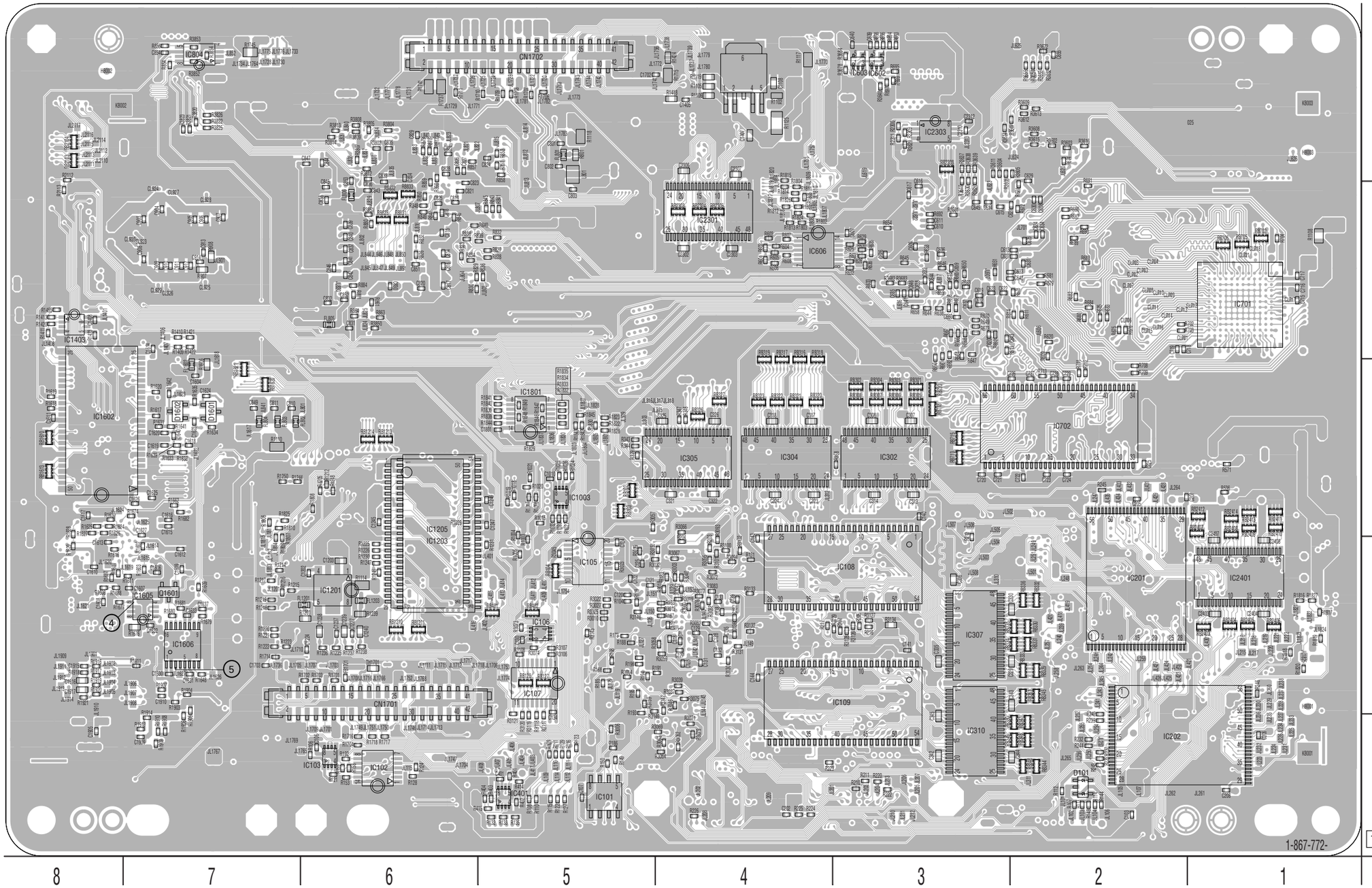
RD-058 BOARD (SIDE B)

CN1701 E-6
CN1702 A-5

D101 E-2
D1601 C-7
D1602 C-7

IC101 E-5
IC102 E-6
IC103 E-6
IC105 D-5
IC106 D-5
IC107 E-5
IC108 D-3
IC109 E-3
IC201 D-2
IC202 E-2
IC302 C-3
IC304 C-4
IC305 C-4
IC307 D-3
IC310 E-3
IC401 E-5
IC602 A-3
IC603 A-3
IC606 B-4
IC701 B-1
IC702 C-2
IC1003 D-5
IC1102 A-4
IC1201 D-6
IC1403 C-3
IC1602 C-8
IC1605 D-7
IC1606 D-7

Q1601 D-7



SECTION 5
IC PIN FUNCTION DESCRIPTION

5-1. IT CONTROL IC (IC604: M306H3MC-058FPUO (AV-089 BOARD))

Pin No.	Pin Name	I/O	Function
1	GRADE	I	Fixed at “L”
2	SIRCS	I	Remote control signal input
3	AV_LINK_IN	I	AV LINK signal input
4	FLD_DATA	O	Output of FLD data signal
5	FLD_IN	I	Fixed at “L”
6	FLD_CLK	O	Output of FLD clock signal
7	BYTE	I	Fixed at “L”
8	CNVSS	I	Connected to VCC when the FLASH is overwritten
9	XCIN	I	Clock signal input (32.768KHz)
10	XCOUT	O	Clock signal output (32.768KHz)
11	XRESET	I	System reset signal input
12	XOUT	O	Clock signal output (10MHz)
13	VSS	–	GND
14	XIN	I	Clock signal input (10MHz)
15	VCC	–	Power supply input (5V)
16	XNMI	I	Fixed at “H” (5V)
17	SYNC_V	I	Detection of Vsync signal
18	IT_REQ	I	Input of communication request signal with host IC
19	SLICEON_IN	I	Input of slicer operation detection
20	EUROPCONT	O	Not used (Open)
21	DIMMER	O	Output of LED power supply switch
22	SH_P_CONT	I/O	Not used
23	BUZZER	O	Not used
24	STATUS0	I	Status signal 0
25	RESET5V	O	Not used
26	STATUS1	I	Status signal 1
27	AV_LINK_OUT	O	Not used (Open)
28	TU_SCL	O	IIC clock signal output
29	TU_SDA	I/O	IIC data signal input / output
30	VSS2	–	GND
31	LP2	O	Filter output 2 (For Fsc)
32	LP3	O	Filter output 3 (For VPS)
33	LP4	O	Filter output 4 (For PDC)
34	VDD2	–	Power supply input (5 V)
35	TEST1	–	Fixed at “L”
36	M1	–	Fixed at “L”
37	SLICEON	O	Output of slicer operation detection
38	IT_SOUT	O	Output of communication data with host IC
39	IT_SIN	I	Input of communication data with host IC
40	IT_CLK	I	Output of communication clock with host IC
41	TXT_EN	O	Not used
42	TXT_SDA	–	Not used
43	TXT_SCL	–	Not used
44	STB_CNT	O	Not used
45	XAWAKE5	O	
46	CLKOUT	O	Fixed at “L”
47	AWAKE_DONE	I	Input of wake-up state
48	XFLMRST	O	Output of communication reset with Flash memory IC
49	IT_XRST	O	Output of communication reset with host IC
50	FLD_XRESET	O	Output of communication reset with FLD drive

Pin No.	Pin Name	I/O	Function
51	FLD_CS	O	Output of FLD driver chip select signal
52	LED_STB	O	Output of stand-by signal
53	_CE	O	
54	AREA0	O	Fixed at “L”
55	AREA1	O	Fixed at “L”
56	IMUTE		Not used
57	FL_PCONT	O	Output of FLD DC/DC converter power control signal
58	TU_BST_C2	I	Not used
59	EEP_WP	O	EEPROM writing protect signal input
60	EEP_SCL	O	Output of IIC clock signal with EEPROM
61	EEP_SDA	I/O	Input/output of IIC data signal with EEPROM
62	EXT_PCONT	I	Fixed at “L”
63	AREA2	O	Fixed at “L”
64	BS_BIT_SW	I	Not used
65	BS_DECSW	O	Not used
66	BS_C_DET	I	Not used
67	BS_BOL_DET	I	Not used (Open)
68	BS_CONV_CONT	O	Not used
69	VCC	–	Power supply input (5V)
70	BS_BST_CONT	O	Not used (Open)
71	VSS	–	Digital GND
72	TU_PCONT	O	Tuner power supply control signal
73	XNENTMUTE	O	Not used (Open)
74	DSEL	O	D terminal output progressive / interlace switching
75	WIDE	O	D terminal output aspect output signal (Wide Mode)
76	S2SW	I	Detection of Line 2 S video signal
77	FR_PCONT	O	Output of FLD driver power control
78	FSW	I	Not used (Open)
79	P_FAIL	–	Input of FALL power detection
80	AVLINK_IN_INT	I	AV LINK signal input
81	KEY2_INT	O	Not used
82	KEY1_INT	O	Not used
83	EURO_MUTE	O	Not used
84	AUTO_PRESET	O	Tuner auto preset signal
85	INSEL_PCONT	O	Output of video signal select
86	H_DET	I	Detection of H sync signal
87	SYNCRO_DET	O	Output of sync detect
88	INSEL1	O	Output switching signal of Line 1
89	INSEL2	O	Output switching signal of Line 2
90	INSEL_TU	O	Output switching signal of tuner
91	FAN_SPEED	O	Fan direction speed switching signal
92	FAN_ONOFF	O	Fan ON/OFF signal output
93	FAN_DET	I	Detect of Fan stopping
94	IDET	I	Not used
95	XP_MUTE	O	Output muting of Audio signal
96	KEY1	I	Input signal of control panel button (KEY1)
97	KEY2	I	Input signal of control panel button (KEY2)
98	KEY3	I	Input signal of control panel button (KEY3)
99	KEY4	I	Input signal of control panel button (KEY4)
100	KEY5	I	Digital GND

Pin No.	Pin Name	I/O	Function
101	IT_CON_TEMP	I	Temperature control signal input
102	BS_C/N_DET	I	Not used (Open)
103	AVSS	–	Analog GND
104	TU_G_MAX	I	Tuner gain detect signal input
105	VREF	–	Power supply input (5V)
106	AVCC	–	Power supply input (5V)
107	XL3MUTE	O	Not used
108	START		Oscillation selection input
109	SYNCIN	I	Slice video input signal
110	SVREF	I	Slice level of REF voltage
111	TEST2	–	Digital GND
112	VDD3	–	Power supply input (5V)
113	CVIN1	I	Slice video input signal
114	VSS3	–	Analog GND
115	FSCIN	I	Not used
116	TU_AFT	I	Tuner AFT control

5-2. CPU (IC104: HD6417306BL200AV (RD-058 BOARD))

Pin No.	Pin Name	I/O	Function
A1	EXTAL	I	Crystal resonator (33MHz)
B1	$\overline{\text{RESET}}$	O	Reset
B2	VSS-CPG	–	CPG GND
C1	$\overline{\text{RDY}}$	O	Bus ready (To IC105)
C2	NF/PJ7	–	Not used (Pull-up)
C3	VSS-PLL2	–	PLL2 GND
D1	DCK/PJ 1	O	Divide Ckio 1/1,1/2,1/3
D2	NF/PJ 4	–	Not used (Open)
D3	NF/PJ 5	–	Not used (Open)
D4	NF/PJ 2	O	No Function/Port (To P-Cont IC)
E1	PD7/NF/FL-D0	O/I	NAND flash data
E2	NF/$\overline{\text{IRQ5}}$/PE0	–	Not used (Pull-up)
E3	CA	I	Chip active
E4	$\overline{\text{BREQ}}$	–	Not used (Pull-up)
F1	PD6/NF/FL-D1	O/I	NAND flash data
F2	PC7	O	Port (From IC107)
F3	$\overline{\text{CS0}}$	O	Chip select 0
F4	NF/$\overline{\text{IRQ4}}$/PE1	I	Interrupt request 4/Port (From IC105)
G1	PD5/NF/FL-D2	O/I	NAND flash data
G2	PC6	O	Port (From IC107)
G3	VDD	–	VDD (SH-SW1.5VA)
G4	VSS	–	GND
H1	$\overline{\text{CS1}}$	O	Chip select 1
H2	PC5/NF/$\overline{\text{IRQ6}}$	I	Interrupt request 6/Port (From V-DEC)
H3	VDDQ	–	IO VDD (SH-SW3.3V)
H4	VSSQ	–	IO GND
J1	PD4/NF/FL-D3	O/I	NAND flash data
J2	PC4/NF/$\overline{\text{IRQ7}}$	I	Interrupt request 7/Port (From GRIPS)
J3	$\overline{\text{CS2}}$	O	Chip select 2
J4	$\overline{\text{BACK}}$	–	Not used (Open)
K1	PD3/NF/FL-D4	O/I	NAND flash data
K2	$\overline{\text{CS4}}$	O	Chip select 4
K3	PC3/NF/$\overline{\text{DREQ2}}$	O	Request from DMAC2 (To NAND flash)
K4	VSSQ	–	IO GND
L1	PD2/NF/FL-D5	O/I	NAND flash data
L2	PC1/NF/$\overline{\text{DREQ3}}$	O	Request from DMAC3 (To AV con-MUTE)
L3	PC2/NF/DRAK2/DACK2	–	Not used (Pull-down)
L4	A20	I	Address (SHHA)
M1	PD1/NF/FL-D6	O/I	NAND flash data
M2	PC0/NF/DRAK3/DACK3	O	To AV con-MUTE
M3	A21	I	Address (SHHA)
M4	VDDQ	–	IO VDD (SH-SW3.3V)
N1	$\overline{\text{CS5}}$	O	Chip select 5
N2	NF/PE7	O	To CN101-DIAG
N3	NF/PE6	O	To ADAC/SRC
N4	VSSQ	–	IO GND
P1	PD0/NF/FL-D7	O/I	NAND flash data
P2	$\overline{\text{CS6}}$	O	Chip select 6
P3	VSS	–	GND
P4	VDD	–	VDD (SH-SW1.5VA)

Pin No.	Pin Name	I/O	Function
R1	A1	I	Address (SHHA)
R2	$\overline{BS}$	O	Bus start
R3	NF/PE5	O	To IC107
R4	A0	I	Address (SHHA)
T1	NF/PE2	O	To EPG
T2	NF/PE3	O	To EPG
T3	D11	O/I	Data (SHHD)
T4	NF/PE4	I	From EPG
U1	D15	O/I	Data (SHHD)
U2	D0	O/I	Data (SHHD)
U3	D3	O/I	Data (SHHD)
V1	D14	O/I	Data (SHHD)
V2	D1	O/I	Data (SHHD)
W1	D2	O/I	Data (SHHD)
Y1	D13	O/I	Data (SHHD)
Y2	D12	O/I	Data (SHHD)
W2	VSSQ	–	IO GND
Y3	D5	O/I	Data (SHHD)
W3	D4	O/I	Data (SHHD)
V3	VDDQ	–	IO VDD (SH-SW3.3V)
Y4	D9	O/I	Data (SHHD)
W4	D6	O/I	Data (SHHD)
V4	D10	O/I	Data (SHHD)
U4	VDDQ	–	IO VDD (SH-SW3.3V)
Y5	D8	O/I	Data (SHHD)
W5	D7	O/I	Data (SHHD)
V5	VDDQ	–	IO VDD (SH-SW3.3V)
U5	VSSQ	–	IO GND
Y6	$\overline{RD}/\overline{CASS}/\overline{FRAME}$	O	Read/$\overline{CAS}$ signal (To SDRAM)
W6	RD/$\overline{WR}$	O	Read/Write (To SDRAM)
V6	A2	I	Address (SHHA)
U6	CKE	O	Clock output enable (To SDRAM)
Y7	$\overline{WE1}$/DQM1	O	D15-D8 select signal
W7	WE0/DQM0/$\overline{REG}$	O	D7-D0 select signal/$\overline{REG}$ signal
V7	VDD	–	VDD (SH-SW1.5VA)
U7	VSS	–	GND
Y8	A3	I	Address (SHHA)
W8	A4	I	Address (SHHA)
V8	VDDQ	–	IO VDD (SH-SW3.3V)
U8	VSSQ	–	IO GND
Y9	A5	I	Address (SHHA)
W9	A6	I	Address (SHHA)
V9	A7	I	Address (SHHA)
U9	A17	I	Address (SHHA)
Y10	CKIO	O	Clock output (To IC110)
W10	A8	I	Address (SHHA)
V10	VDDQ	–	IO VDD (SH-SW3.3V)
U10	VSSQ	–	IO GND
Y11	A9	I	Address (SHHA)
W11	A10	I	Address (SHHA)

Pin No.	Pin Name	I/O	Function
V11	VDDQ	–	IO VDD (SH-SW3.3V)
U11	VSSQ	–	IO GND
Y12	A11	I	Address (SHHA)
W12	A12	I	Address (SHHA)
V12	VDDQ	–	IO VDD (SH-SW3.3V)
U12	VSSQ	–	IO GND
Y13	A13	I	Address (SHHA)
W13	A14	I	Address (SHHA)
V13	A15	I	Address (SHHA)
U13	A18	I	Address (SHHA)
Y14	$\overline{WE3}$/DQM3/$\overline{ICIOWR}$	O	D31-D24 select signal
W14	$\overline{WE2}$/DQM2/$\overline{ICIORD}$	O	D23-D16 select signal
V14	VDD	–	VDD (SH-SW1.5VA)
U14	VSS	–	GND
Y15	$\overline{CS3}$	O	Chip select 3
W15	$\overline{RAS}$	O	RAS signal
V15	A16	I	Address (SHHA)
U15	A19	I	Address (SHHA)
Y16	D23	O/I	Data (SHHD)
W16	D24	O/I	Data (SHHD)
V16	VDDQ	–	IO VDD (SH-SW3.3V)
U16	VSSQ	–	IO GND
Y17	D22	O/I	Data (SHHD)
W17	D25	O/I	Data (SHHD)
V17	D21	O/I	Data (SHHD)
Y18	D26	O/I	Data (SHHD)
W18	D27	O/I	Data (SHHD)
Y19	D19	O/I	Data (SHHD)
Y20	D18	O/I	Data (SHHD)
W20	D29	O/I	Data (SHHD)
W19	VSSQ	–	IO GND
V20	D30	O/I	Data (SHHD)
V19	D17	O/I	Data (SHHD)
V18	VDDQ	–	IO VDD (SH-SW3.3V)
U20	D31	O/I	Data (SHHD)
U19	D16	O/I	Data (SHHD)
U18	D28	O/I	Data (SHHD)
U17	D20	O/I	Data (SHHD)
T20	NF/AUDATA[1]/PA2	O/I	Audio data /Port
T19	NF/AUDATA[0]/PA5	O/I	Audio data /Port
T18	A23	I	Address (SHHA)
T17	A22	I	Address (SHHA)
R20	NF/AUDATA[3]/PA3	O/I	Audio data /Port
R19	NF/AUDATA[2]/PA6	O/I	Audio data /Port
R18	A25	I	Address (SHHA)
R17	A24	I	Address (SHHA)
P20	NF/AUDSYNC/PA4	I	Audio sync/Port
P19	NF/AUDCK/PA7	O	Audio clock/Port
P18	VDD	–	VDD (SH-SW1.5VA)
P17	VSS	–	GND

Pin No.	Pin Name	I/O	Function
N20	$\overline{\text{IRL0}}$	I	Interrupt 0 (To CARIB)
N19	$\overline{\text{IRL1}}$	I	Interrupt 1 (To CARIB)
N18	VDDQ	–	IO VDD (SH-SW3.3V)
N17	VSSQ	–	IO GND
M20	IRL2	I	Interrupt 2 (From NAZCA2)
M19	IRL3	I	Interrupt 3 (From GRIPS)
M18	VDDQ	–	IO VDD (SH-SW3.3V)
M17	VSSQ	–	IO GND
L20	AN0	–	Not used (Open)
L19	AN1	–	Not used (Open)
L18	AN2	–	Not used (Open)
L17	AN3	–	Not used (Open)
K20	FWE/AUDATA[1]/PK5	O	NAND flash WE
K19	ADTRG/AUDATA[0]/PK2	O	Audio-MUTE
K18	AVcc-ADC	–	A/D analog VCC (3.3V)
K17	AVss-ADC	–	A/D analog GND
J20	FCE/AUDATA[3]/PK7	O/I	NAND flash CE/AUD data/Port
J19	FCDE/AUDATA[2]/PK6	O/I	NAND flash CDE/AUD data/Port
J18	VDDQ	–	IO VDD (SH-SW3.3V)
J17	VSSQ	–	IO GND
H20	FSC/AUDSYNC/PK3	O	NAND flash SC/AUD sync/Port
H19	FOE/AUDCK/PK4	O	NAND flash OE/AUD clock/Port
H18	MD8	–	Not used (Open)
H17	MD7	–	Not used (Open)
G20	MD5/FRB	I	NAND flash RB
G19	MD6/$\overline{\text{IOIS16}}$	–	Not used (Open)
G18	VDD	–	VDD (SH-SW1.5VA)
G17	VSS	–	GND
F20	I2C0-SDA	O/I	I2C0 data
F19	I2C0-SCL	O	I2C0 clock
F18	I2C1-SDA	O/I	I2C1 data
F17	I2C1-SCL	O	I2C1 clock
E20	$\overline{\text{DREQ1}}$	I	Request from DMAC1
E19	$\overline{\text{DREQ0}}$	I	Request from DMAC0
E18	VDDQ	–	IO VDD (SH-SW3.3V)
E17	VSSQ	–	IO GND
D20	NF/PH0	O	To CARIB-RESET
D19	DACK1	O	To BUFF
D18	DRAK1	–	Not used (Open)
C20	NF (Pull-down)	–	Not used (Pull-down)
C19	VSSQ	–	IO VDD (SH-SW3.3V)
B20	VDDQ	–	IO GND
A20	PH2	O	To EPG
A19	VDD-PLL3	–	Pull-up
B19	NF (Pull-down)	–	Pull-down
A18	DACK0	O	To BUFF
B18	VSS-PLL3	–	PLL3-GND
C18	PH1	I	From EPG
A17	MD4/$\overline{\text{CE2B}}$	–	Not used (Pull-up)
B17	MD3/$\overline{\text{CE2A}}$	–	Not used (Pull-up)

Pin No.	Pin Name	I/O	Function
C17	DRAK0	–	Not used (Open)
D17	MD1	–	Not used (Pull-up)
A16	SCIF0-TXD/PG5	O/I	SCIF0 transmit data/Port
B16	SCIF0-RXD/PG6	O/I	SCIF0 recive data/Port
C16	MD2	–	Not used (Pull-down)
D16	MD0	–	Not used (Pull-down)
A15	SCIF0-CLK/PG7	O	SCIF0 clock/Port
B15	$\overline{\text{SCIF1-RTS}}$/PG2	O	SCIF1 transmission request/Port
C15	TCK	O	H-UDI clock
D15	VSSQ	–	IO VDD (SH-SW3.3V)
A14	$\overline{\text{SCIF2-RTS}}$/PH5	O	SCIF2 transmission request/Port
B14	$\overline{\text{SCIF1-CTS}}$/PG3	O	SCIF2 transmission request/Port
C14	VDD	–	VDD (SH-SW1.5VA)
D14	VSS	–	GND
A13	$\overline{\text{SCIF2-CTS}}$/PH6	O	SCIF2 transmission enable/Port
B13	SCIF1-RXD/PG1	O/I	SCIF1 receive data /Port
C13	VDDQ	–	IO VDD (SH-SW3.3V)
D13	VSSQ	–	IO GND
A12	SCIF2-RXD/PH4	O/I	SCIF2 receive data /Port
B12	SCIF1-TXD/PG0	O/I	SCIF1 transmit data/Port
C12	TDO	–	H-UDI data
D12	TDI	–	H-UDI reset
A11	SCIF2-TXD/PH3	O/I	SCIF2 transmit data/Port
B11	SCIF1-CLK/PG4	O	SCIF2 clock/Port
C11	VDDQ	–	IO VDD (SH-SW3.3V)
D11	VSSQ	–	IO GND
A10	SCIF2-CLK/PH7	O	SCIF2 clock/Port
B10	NMI	I	From ICE
C10	TMS	–	H-UDI mode
D10	$\overline{\text{TRST}}$	–	H-UDI reset
A9	CMT-CTR3/PB1	–	Not used (Pull-down)
B9	CMT-CTR2/PB2	O	Not used (Open)
C9	VDDQ	–	IO VDD (SH-SW3.3V)
D9	VSSQ	–	IO GND
A8	CMT-CTR1/PB3	O	To DTT-IF
B8	CMT-CTR0/TCLK/PB4	O	To EPGVSEL
C8	$\overline{\text{ASEBRK}}$/BRKACK	–	H-UDI pin break
D8	STATUS1	O	To IC107
A7	NF/PF1	O	To EPG
B7	NF/PF0	O	To EPG
C7	VDD	–	VDD (SH-SW1.5VA)
D7	VSS	–	GND
A6	NF/PF3	O	To EPG
B6	NF/PF2	I	To EPG
C6	NF/PJ3	–	Not used (Pull-down)
D6	STATUS0	O	To IC107
A5	NF/$\overline{\text{BS2}}$/PB7	–	Not used (Pull-down)
B5	NF/PB6	O	To PLL
C5	NF/PB5	O	To PLL
D5	$\overline{\text{MRESET}}$	–	Not used (Pull-up)

Pin No.	Pin Name	I/O	Function
A4	VDD-PLL1	–	PLL1 VDD
B4	VSS-PLL1	–	PLL1 GND
C4	NF/PJ6	–	Not used (Pull-up)
A3	VDD-CPG	–	CPG VDD (SH-SW3.3V)
B3	VDD-PLL2	–	PLL2 VDD
A2	XTAL	I	Crystal resonator (33MHz)

MEMO

SECTION 6
SERVICE MODE

This is the diagnostics to define the faulty position.
The diagnostics can be executed using the remote commander (Remote Control Mode 3) and monitor.
To execute the service mode, connect the VIDEO OUT (L2 OUT) connector to the monitor.
Connect the AC power cord to the power outlet.
A message, “WELCOME” appears on the display panel of the main unit.
Keep holding down the “REC PAUSE”, “REC STOP” and “REC” keys, of the main unit (about 10 seconds) until the screen appears on the monitor display.
Either “OK” or “NG” appears on the monitor screen while the diagnostics is in progress.
You can judge the respective device or its peripheral from the message of either “OK” or “NG” on the monitor screen.
When an abnormality is detected, the diagnostics is stopped at that moment and you can select to proceed the diagnostics or to stop it.
Use the keys on the front panel of the main unit to operate the diagnostics.

6-1. Checking Item

Checking item	IC name	REF
GRIPS2	IC CXD9830Q	IC501
NAZCA	IC CXD4705GB	IC802
CARIB	IC CXD4702GB	IC601
VIDEO DEC	IC CXD 3805R	IC1204
EEPROM	IC CAT24WC32W	IC101
NAND FLASH	IC K9F2808U0C	IC402
DV	IC UPD72893BFI	IC1601

All parts are mounted on the RD-058 assembly board.

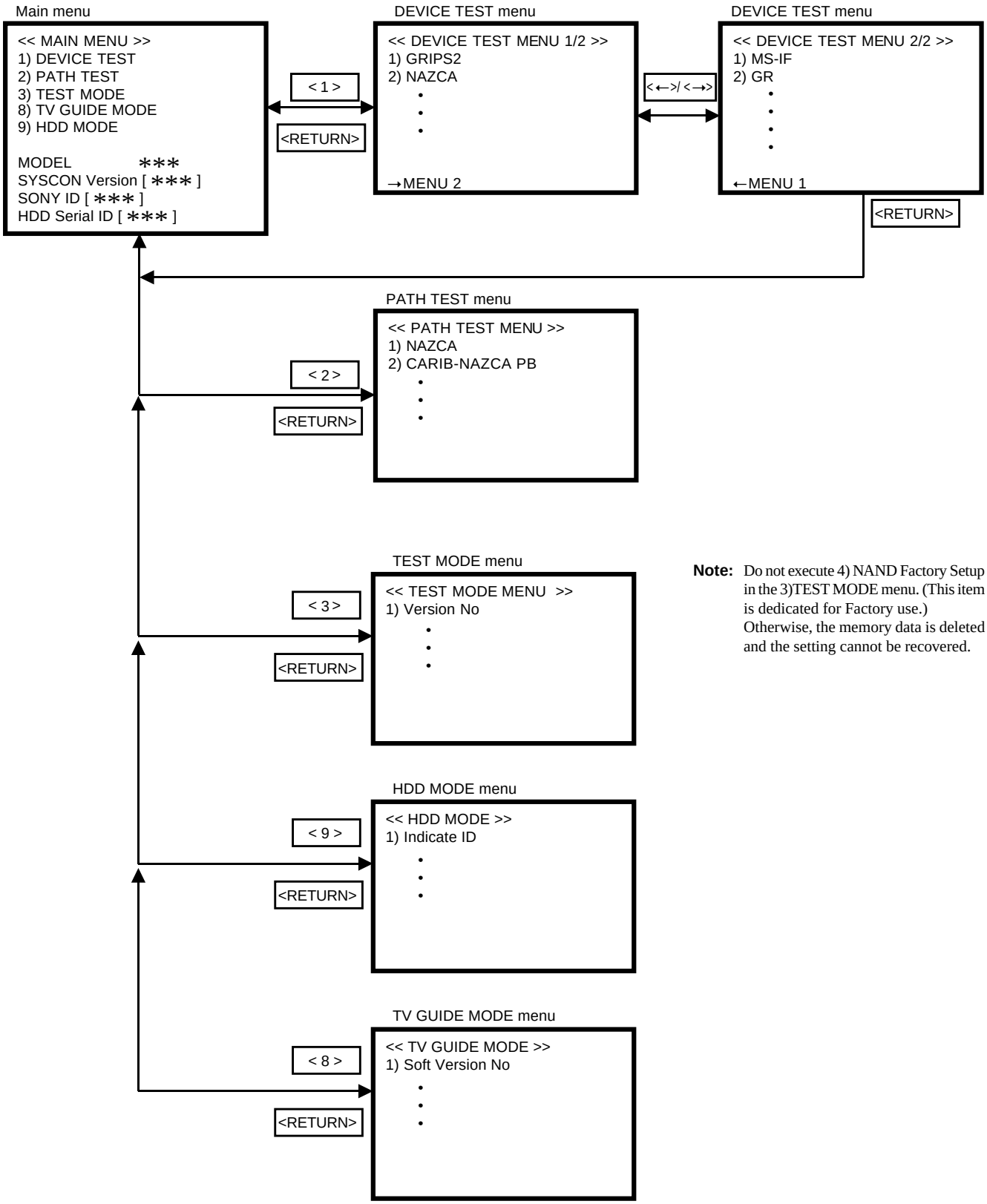
Checking item	IC name	REF
TVP5150	IC TVP5150AM1PBSR	IC702
TL751	IC TL751A1-LF	IC304
Dorothy	IC CXD9880TQ	IC401

These parts are mounted on the UE-001 assembly board.

Note: Do not execute 4) NAND Factory Setup in the 3)TEST MODE menu. (This item is dedicated for Factory use.)
Otherwise, the memory data is deleted and the setting cannot be recovered.

When NG is displayed as the result of the DEVICE TEST, the IC or its peripheral is defective. When NG is displayed on the PATH TEST, defect exists in between ICs.

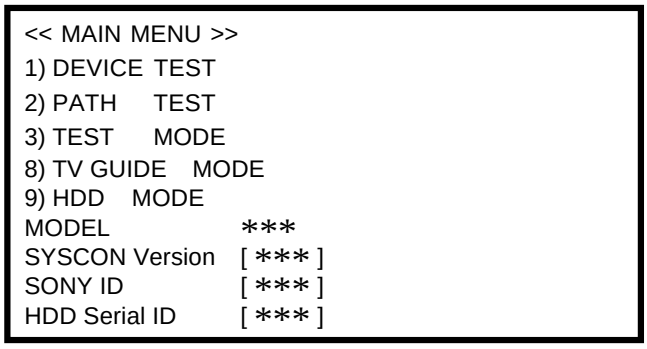
6-2. Screen Transition in the Service Mode



Note: Do not execute 4) NAND Factory Setup in the 3)TEST MODE menu. (This item is dedicated for Factory use.) Otherwise, the memory data is deleted and the setting cannot be recovered.

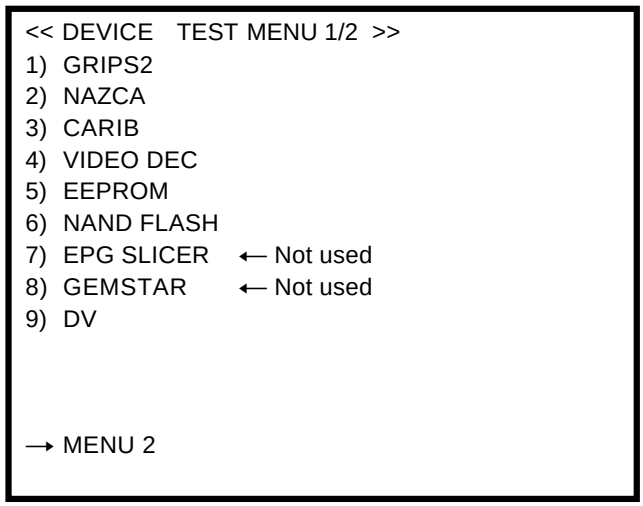
6-3. Service Mode Menu Items and Description

1) When the key “1” is pressed down, the monitor display moves to the device check menu screen.
2) When the key “2” is pressed down, the monitor display moves to the path check menu screen between deivces.
3) When the key “3” is pressed down, the monitor display moves to the version check screen.
4) When the key “8”is pressed down, the monitor display moves to the TV guide check screen.
5) When the key “9” is pressed down, the monitor display moves to the hard disk check screen.



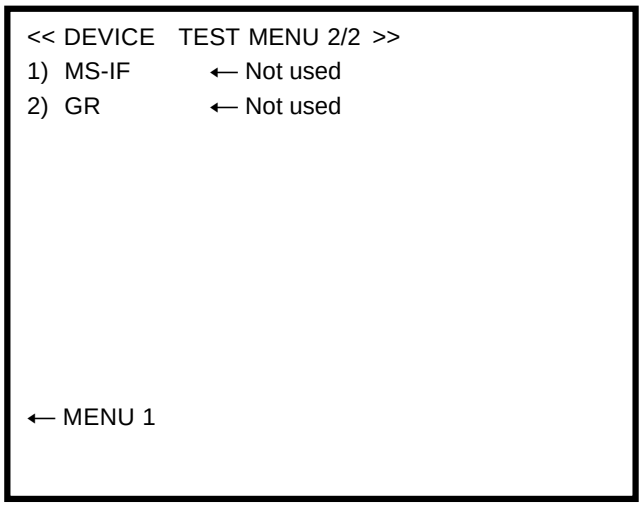
6-4. Device Check Menu (1/2)

1) When the key “1” is pressed down, the GRIPS2 device check will be executed.
2) When the key “2” is pressed down, the NAZCA device check will be executed.
3) When the key “3” is pressed down, the CARIB device check will be executed.
4) When the key “4” is pressed down, VIDEO DEC device check will be executed.
5) When the key “5” is pressed down, the EEPROM device check will be executed .
6) When the key “6” is pressed down, the NAND FLASH device check will be executed.
7) Key “7” is not used.
8) Key “8” is not used.
9) When the key “9” is pressed down, the DV device check will be executed.
10) When the key “→” is pressed down, the monitor display moves to the next device check screen.



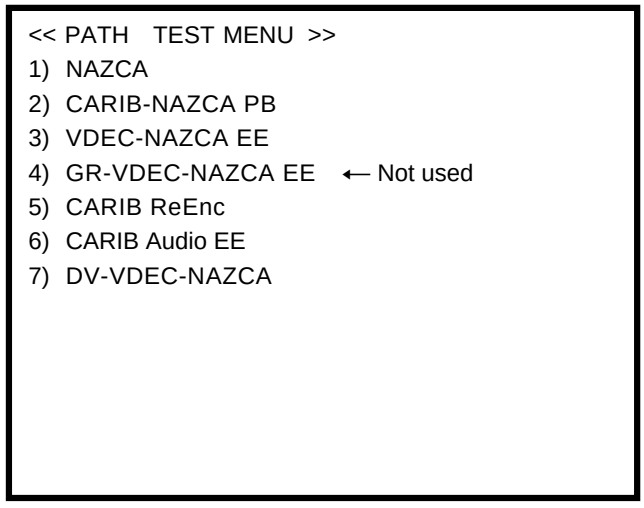
6-5. Device Check Menu (2/2)

1) Key “1” is not used.
2) Key “2” is not used.
3) When the key “←” is pressed down, the monitor display returns previous device check screen.

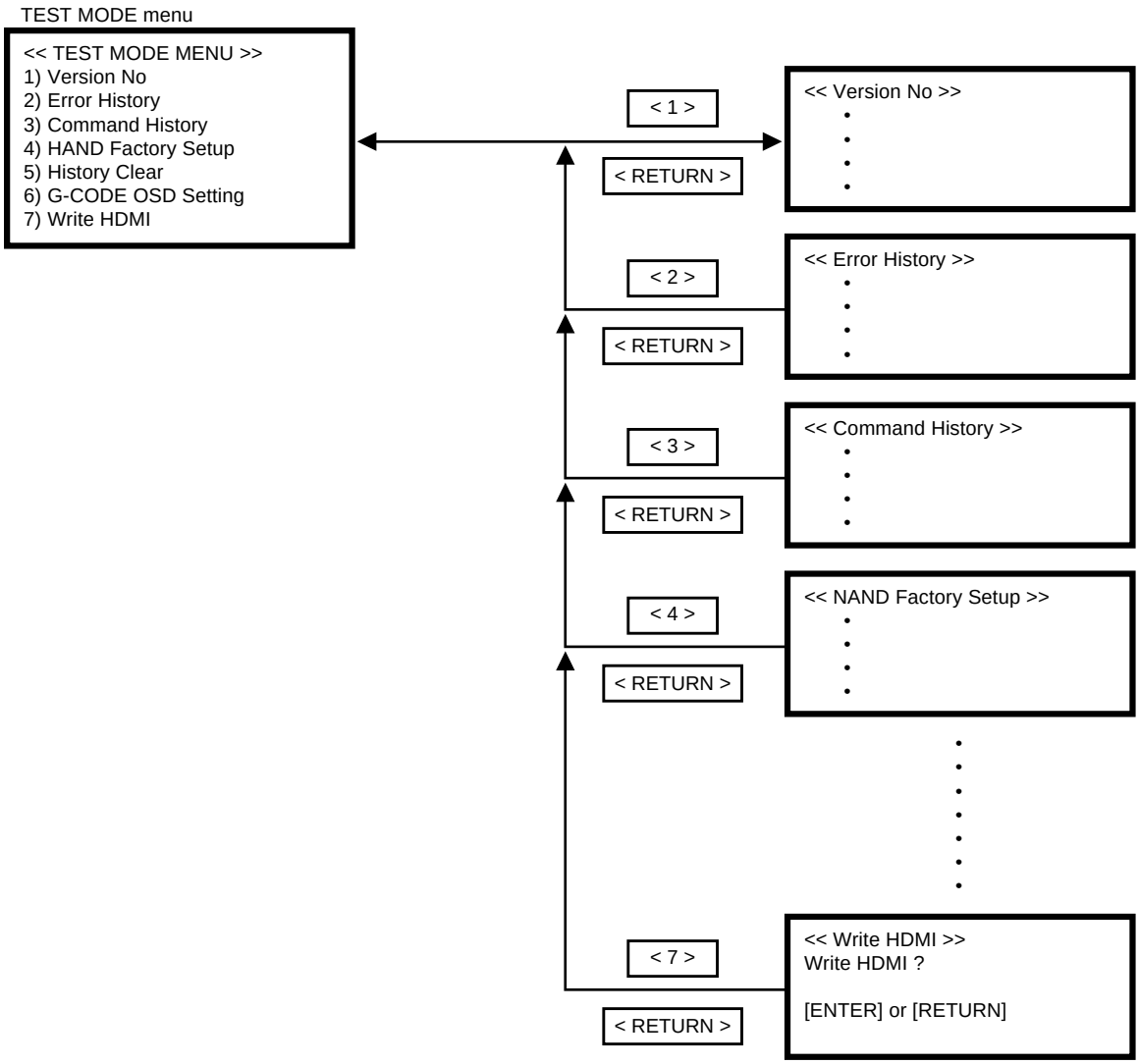


6-6. Path Check Menu

1) When the key “1” is pressed down, the NAZCA path check is executed.
2) When the key “2” is pressed down, the path check of PB between CARIB to NAZCA will be executed.
3) When the key “3” is pressed down, the path check of EE between VDEC to NAZCA will be executed.
4) Key “4” is not used.
5) When the key “5” is pressed down, the path check of CARIB ReEnc will be executed.
6) When the key “6” is pressed down, the path check of EE between CARIB Audio will be executed.
7) When the key “7” is pressed down, the path check between DV to VDEC to NAZCA will be executed.

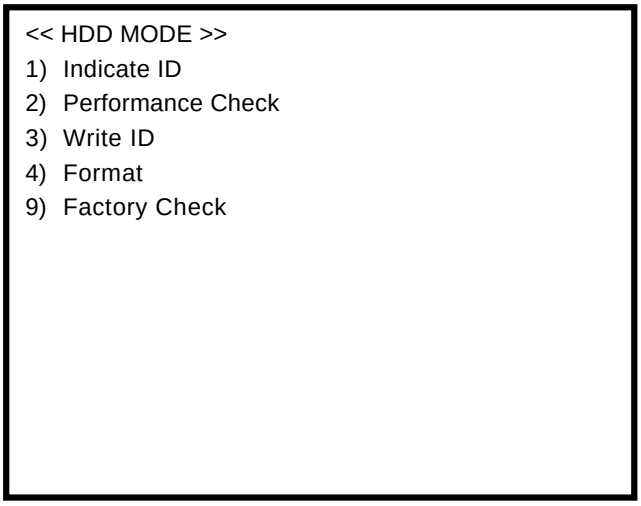


6-7. Screen Transition in the TEST Mode



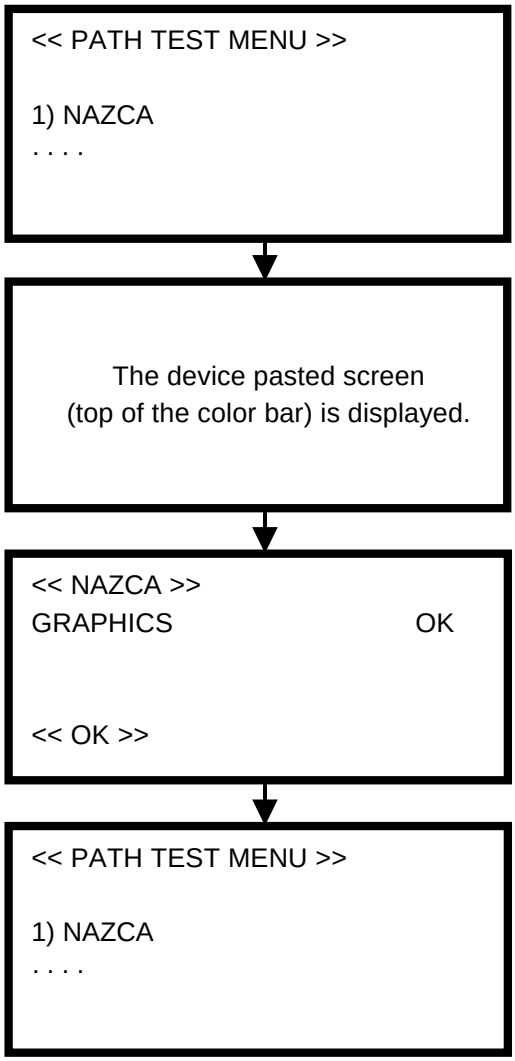
6-8. Hard Disk Check Menu

1) When the key “1” is pressed down, the ID check will be executed.
2) When the key “2” is pressed down, performance check will be executed.
3) When the key “3” is pressed down, WRITE ID will be executed.
4) When the key “4” is pressed down, Format will be executed.
5) When the key “9” is pressed down, Factory check will be executed.
6) When the “RETURN” key is pressed, the monitor display moves to the menu screen.

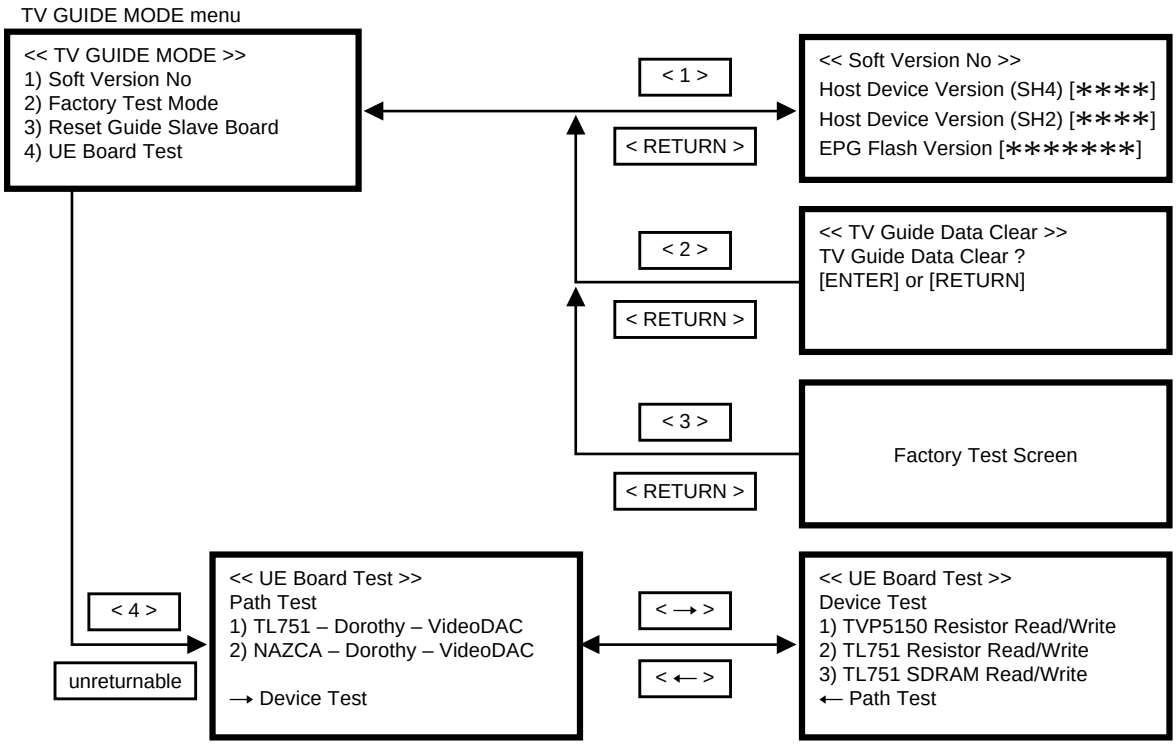


6-9. Path Individual Check (Pasted Screen Check (visual check) and data check (digital video data auto-check)) Screen Transition

1) Select the NAZCA item from the menu.
2) The device pasted screen (top of the color bar) is displayed. (When visual check is required, the display does not move to the judgement screen but remains displaying the picture.)
3) When the “ENTER” key is pressed, the monitor display moves to the judgement screen.
4) When the “RETURN” key is pressed on the judgement screen, the monitor display moves to the menu screen.



6-10. Screen Transition in the TV GUIDE Mode



6-11. TV GUIDE MODE Menu

1) When the key "1" is presed down, the monitor display moves to the version check screen.
2) When the key "2" is pressed down, the Factory Test Mode will be executed.
3) When the key "3" is pressed down, the TV Guide Data clear will be executed.
4) When the key "4" is pressed down, the monitor display moves to the UE Board Test screen after 25 seconds.

<< TV GUIDE MODE >>
1) Soft Version No
2) Factory Test Mode
3) Reset Guide Slave Board
4) UE Board Test

6-12. UE Board Test (Path test)

1) When the key "1" is pressed down, the path check between TL751 to Dorothy to Video DAC will be executed.
2) When the key "2" is pressed down, the path check between NAZCA to Dorothy to Video DAC will be executed.
3) When the key "→" is pressed down, the monitor display moves to the device test screen.

<< UE Board Test >>
Path Test
1) TL751 – Dorothy – VideoDAC
2) NAZCA – Dorothy – VideoDAC

→ Device Test
Don't Return

6-13. UE Board Test (Device test)

1) When the key "1" is pressed down, the TVP5150 Resister check will be executed.
2) When the key "1" is pressed down, the TL751 Resister check will be executed.
3) When the key "1" is pressed down, the TL751 SDRAM check will be executed.
4) When the key "←" is pressed down, the monitor display returns previous path test screen.

<< UE Board Test >>
Device Test
1) TVP5150 Resistor Read/Write
2) TL751 Resistor Read/Write
3) TL751 SDRAM Read/Write
← Path Test
Don't Return

SECTION 7
ADJUSTMENT

7-1. Video System Adjustment

Preparing for Adjustment

1. Equipments

• Oscilloscope
• Reference Disk
HLX-505 (NTSC single layer disk) J-6090-089-A
HLX-504 (NTSC dual layer disk) J-6090-088-A
NTSC : E,Taiwan
PAL : Russian, Australian, Singapore

1. Video Level Adjustment (MI-054 Board)

<Purpose>

This adjustment is made to satisfy the PAL standard, If it is adjusted incorrectly, brightness will be too bright or too dark.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	LINE OUT (VIDEO) connector (terminated in 75 Ω)
Instrument	Oscilloscope
Adjusting element	RV301 (Composite), RV302 (Component)
Specification	$1.0^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) Insert the reference disk and play back the 100% color bars.
2) Adjust RV301 (Composite) or RV302 (Component) for 1.0 Vp-p.

Fig. 7-1.

7-2. S-Video Output S-Y Check

<Purpose>

This check confirms that the S-video output. If it adjusted incorrectly, color will be to dark or too thin.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-Y) connector (terminated in 75 Ω)
Instrument	Oscilloscope
Specification	1.0 ± 0.05Vp-p

Adjusting method:

1) Insert the reference disk and play back the 100% color bars.
2) Confirm that the S-Y level is 1.0 ± 0.05Vp-p.

Fig. 7-2.

7-3. S-Video Output S-C Level Check

<Purpose>

This check confirms that the S-video output S-C conforms to the NTSC standard. If it is adjusted incorrectly, color will be too dark or too thin.

Mode	Video level adjustment in test mode.
Signal	Color bars
Test point	S VIDEO OUT (S-C) connector (terminated in 75 Ω)
Instrument	Oscilloscope
Specification	286 ± 30mVp-p

Adjustment method :

1) Insert the reference disk and play back the 100% color bars.
2) Confirm that the burst signal level of S-C is 286 ± 30 mVp-p.

Fig. 7-3.

7-4. Component Video Output Y Check

<Purpose>

This check confirms that the Y signal output is correct. If this signal level is not correct, brightness of the video signal will be too bright or too dark when the COMPONENT connector output signal is connected to the projector having COMPONENT input.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (Y)
	connector,D1/D2 VIDEO OUT connector (terminated in 75 Ω)
Instrument	Oscilloscope
Specification	1.0 ± 0.05Vp-p

Adjustment method:

1) Insert the reference disk and play back the 100% color bars.
2) Check that the Y level is 1.0 ± 0.05 Vp-p.

Fig. 7-4.

7-5. Component Video Output B-Y Check

<Purpose>

This check confirms that the B-Y signal of the component video output is correct. If this signal level is not correct, color of the video signal will have different color when the COMPONENT connector output signal is connected to the projector having COMPONENT input.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (PB/CB) terminal (terminated in 75 Ω)
Instrument	Oscilloscope
Specification	700 ± 50mVp-p

Adjustment method:

1) Insert the reference disk and play back the 100% color bars.
2) Confirm that the B-Y level is 700 ± 50 mVp-p.

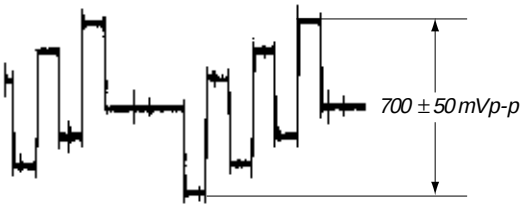


Fig. 7-5.

7-6. Component Video Output R-Y Check

<Purpose>

This check confirms that the R-Y signal of the component video output is correct. If this signal level is not correct, color of the video signal will have different color when the COMPONENT connector output signal is connected to the projector having COMPONENT input.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (PR/CR) connector (terminated in 75 Ω)
Instrument	Oscilloscope
Specification	700 ± 50mVp-p

Adjustment method:

1) Insert the reference disk and play back the 100% color bars.
2) Confirm that the R-Y level is 700 ± 50 mVp-p.

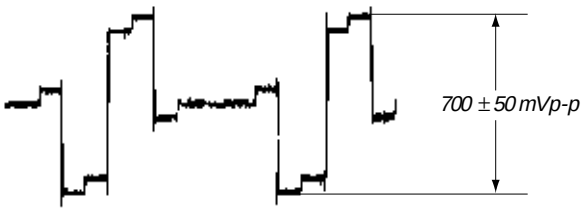


Fig. 7-6.

SECTION 8
REPAIR PARTS LIST

8-1. EXPLODED VIEWS

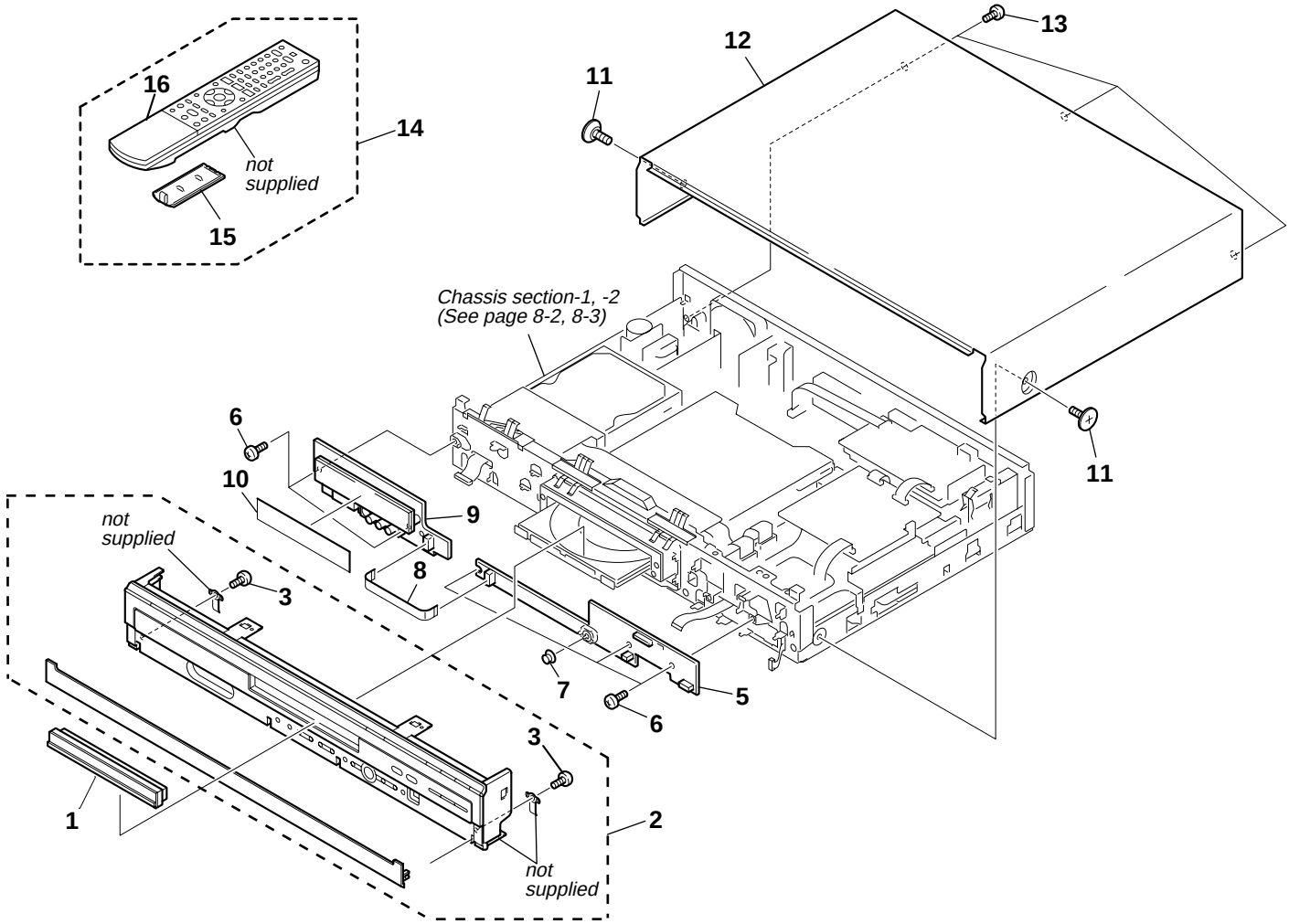
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ⚠or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

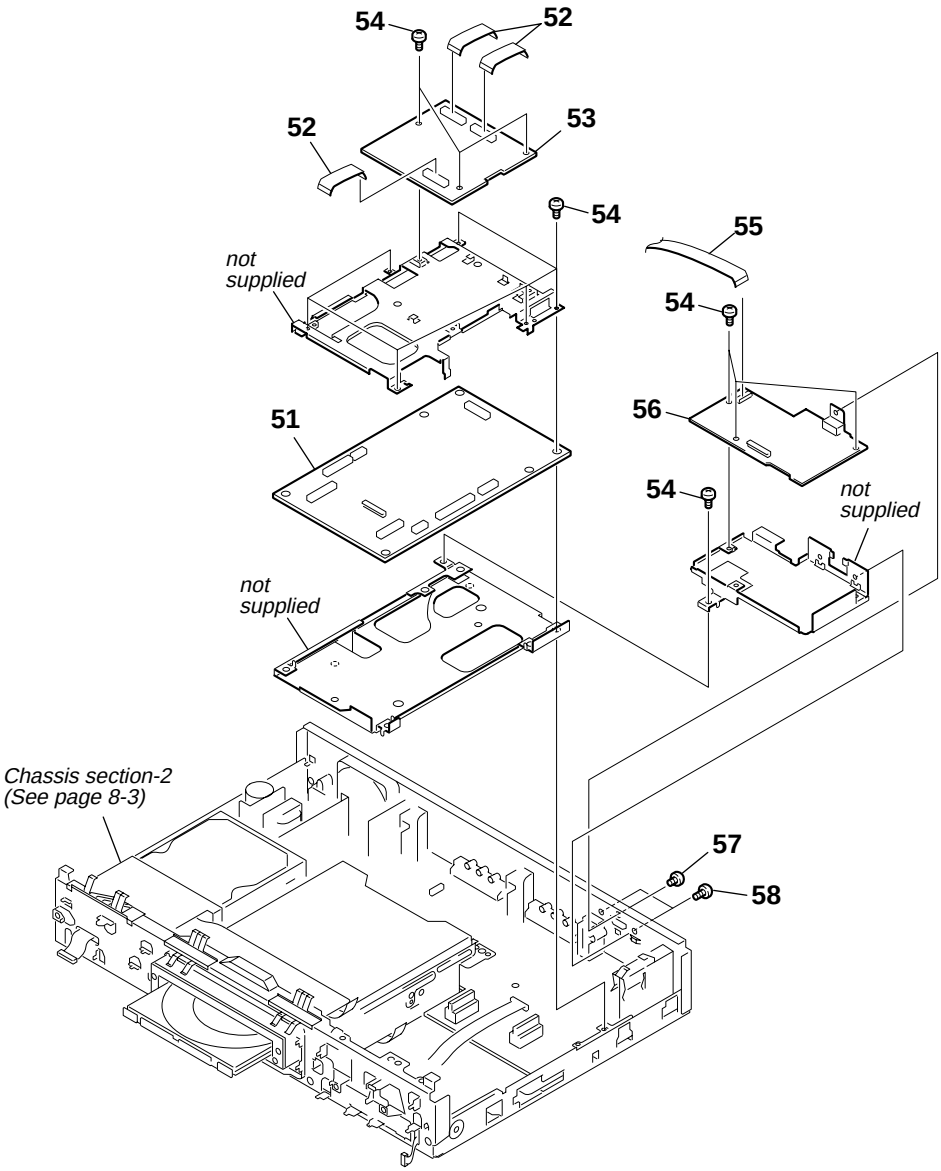
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

8-1-1. OVERALL SECTION



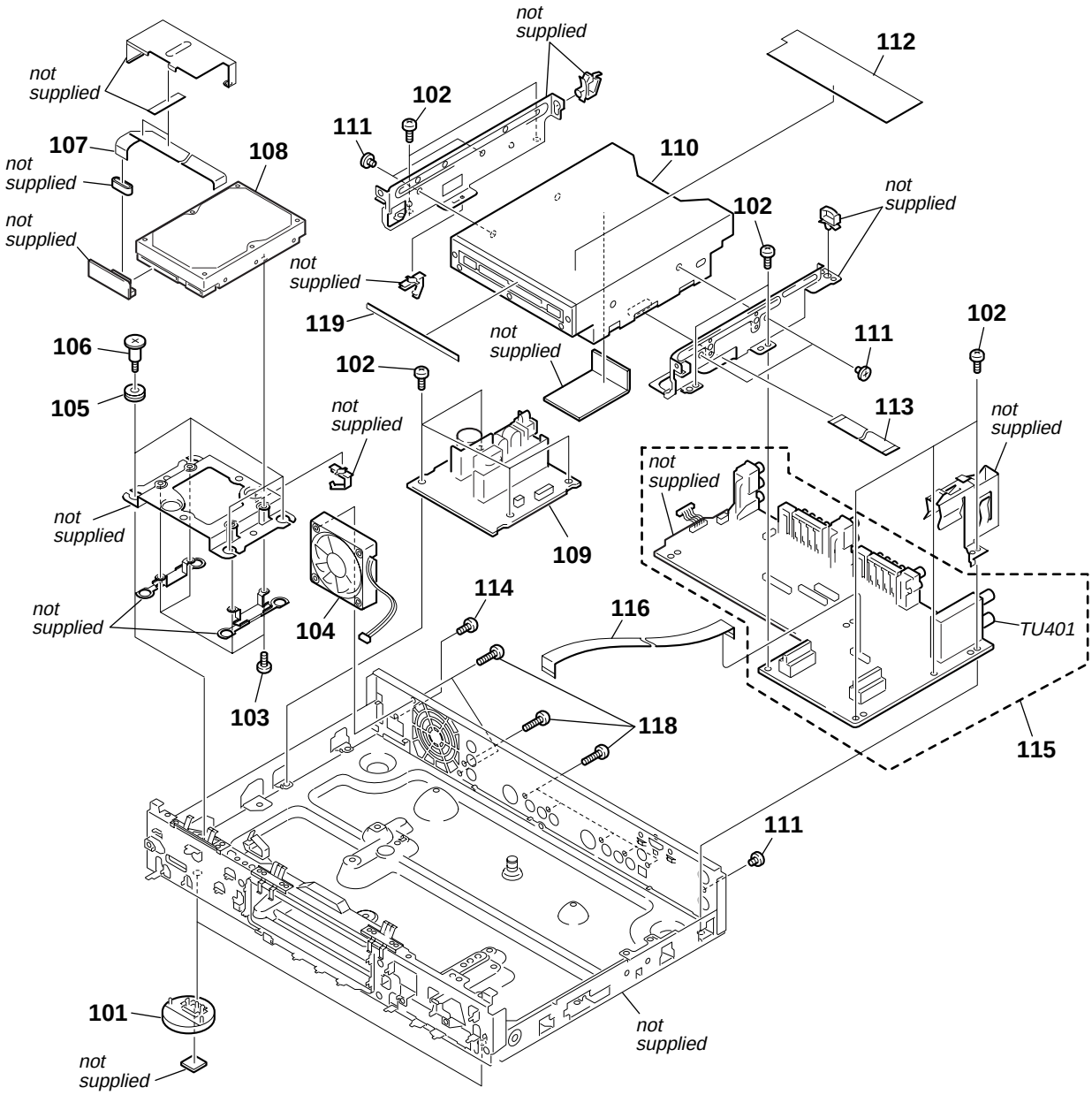
Ref. No.	Part No.	Description	Remarks
1	X-2067-107-1	COVER ASSY (1355), TRAY	
2	X-2067-095-1	PANEL ASSY, FRONT (1355)	
3	7-685-533-14	SCREW +BTP 2.6X6 TYPE2 N-S	
5	A-1129-159-A	FR-249 (AS) COMPL	
6	3-077-331-01	+BV3 (3-CR)	
7	2-159-703-12	CURSOR	
8	1-829-813-11	CABLE, FLEXIBLE FLAT(FFS-001)	
9	A-1129-157-A	FL-144 (BS) COMPL	
10	2-583-904-01	SHEET, FL	
11	3-070-883-41	SCREW, TAPPING	
12	A-1121-378-A	CASE BLOCK ASSY (SERVICE USE)	
13	3-077-331-31	+BV3 (3-CR)	
14	1-479-361-11	REMOTE COMMANDER (RMT-D218A)	
15	3-071-119-91	LID, BATTERY	
16	2-515-217-71	DOOR (3G), SLIDE	

8-1-2. CHASSIS SECTION-1



Ref. No.	Part No.	Description	Remarks
51	A-1129-277-A	RD-58 (AS) S COMPL (SERVICE)	
52	1-830-772-11	CABLE, FLEXIBLE FLAT (FFC-059)	
53	A-1129-163-A	UE-001 (AS) COMPL	
54	3-077-331-01	+BV3 (3-CR)	
55	1-830-660-11	CABLE, FLEXIBLE FLAT (FMA-017)	
56	A-1129-161-A	MI-054 (AS) COMPL	
57	3-088-023-01	+B3 (3-CR)	
58	3-077-331-31	+BV3 (3-CR)	

8-1-3. CHASSIS SECTION-2



Ref. No.	Part No.	Description	Remarks
101	3-086-778-01	FOOT	
102	3-077-331-01	+BV3 (3-CR)	
103	3-087-675-01	6-32UNCX5	
104	1-787-291-11	FAN, D.C	
105	3-089-380-01	DAMPER	
106	2-159-920-01	SCREW, HDD DAMPER	
107	1-830-755-21	CABLE, FLEXIBLE FLAT (FRH-002)	
108	A-1084-212-A	HDD-XL80-2-160GB (J) ASSY	
⚠109	1-468-929-11	POWER UNIT	
110	1-797-247-11	DRIVE, DVD DRW-V35P	
111	3-088-023-01	+B3 (3-CR)	
112	2-159-921-11	COVER, FLEXIBLE	
113	1-829-811-21	CABLE, FLEXIBLE FLAT (FRD-001)	
114	3-088-022-01	+P3 (B TYPE) (3-CR)	
* 115	A-1129-155-A	AV-089 (KS) COMPL	
116	1-829-815-11	CABLE, FLEXIBLE FLAT (FAF-001)	
118	3-077-331-31	+BV3 (3-CR)	
119	2-635-472-01	CUSHION (DRIVE-1380)	
TU401	1-693-690-11	TUNER (BTF-3WA401)	

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

8-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- COILS
  uH: µH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
*	A-1129-155-A	AV-089 (KS) COMPL			
		**********			
		< CAPACITOR >			
C101	1-126-947-11	ELECT	47uF	20%	35V
C104	1-137-921-31	ELECT	1500uF	20%	10V
C107	1-126-947-11	ELECT	47uF	20%	35V
C108	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C110	1-126-947-11	ELECT	47uF	20%	35V
C111	1-126-947-11	ELECT	47uF	20%	35V
C115	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C116	1-128-945-31	ELECT	1000uF	20%	10V
C120	1-165-714-31	ELECT	150uF	20%	6.3V
C121	1-165-714-31	ELECT	150uF	20%	6.3V
C124	1-126-926-11	ELECT	1000uF	20%	10V
C126	1-126-947-11	ELECT	47uF	20%	35V
C127	1-126-947-11	ELECT	47uF	20%	35V
C128	1-126-947-11	ELECT	47uF	20%	35V
C129	1-126-947-11	ELECT	47uF	20%	35V
C132	1-128-952-31	ELECT	220uF	20%	25V
C133	1-126-947-11	ELECT	47uF	20%	35V
C140	1-126-963-11	ELECT	4.7uF	20%	50V
C206	1-126-947-11	ELECT	47uF	20%	35V
C207	1-126-947-11	ELECT	47uF	20%	35V
C208	1-126-947-11	ELECT	47uF	20%	35V
C209	1-126-947-11	ELECT	47uF	20%	35V
C210	1-126-963-11	ELECT	4.7uF	20%	50V
C212	1-126-963-11	ELECT	4.7uF	20%	50V
C213	1-126-947-11	ELECT	47uF	20%	35V
C214	1-126-947-11	ELECT	47uF	20%	35V
C215	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C216	1-126-964-11	ELECT	10uF	20%	50V
C217	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C218	1-126-947-11	ELECT	47uF	20%	35V
C219	1-126-961-11	ELECT	2.2uF	20%	50V
C220	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C221	1-126-947-11	ELECT	47uF	20%	35V
C222	1-126-964-11	ELECT	10uF	20%	50V
C225	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C226	1-165-883-11	CERAMIC CHIP	10000PF	10%	630V
C301	1-126-947-11	ELECT	47uF	20%	35V
C302	1-126-924-11	ELECT	330uF	20%	10V
C304	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C307	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C308	1-126-934-11	ELECT	220uF	20%	16V
C309	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C310	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C312	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C314	1-164-217-11	CERAMIC CHIP	150PF	5%	50V

Ref. No.	Part No.	Description			Remarks
C317	1-126-934-11	ELECT	220uF	20%	16V
C318	1-126-934-11	ELECT	220uF	20%	16V
C319	1-126-947-11	ELECT	47uF	20%	35V
C320	1-126-947-11	ELECT	47uF	20%	35V
C321	1-126-960-11	ELECT	1uF	20%	50V
C323	1-126-786-11	ELECT	47uF	20%	16V
C324	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C325	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C326	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C327	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C328	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C329	1-126-786-11	ELECT	47uF	20%	16V
C334	1-126-947-11	ELECT	47uF	20%	35V
C335	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C336	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C337	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C338	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C341	1-126-947-11	ELECT	47uF	20%	35V
C346	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C401	1-126-786-11	ELECT	47uF	20%	16V
C405	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C406	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C407	1-126-964-11	ELECT	10uF	20%	50V
C408	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C409	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C410	1-126-964-11	ELECT	10uF	20%	50V
C415	1-126-933-11	ELECT	100uF	20%	16V
C416	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C446	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C447	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C449	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C450	1-126-947-11	ELECT	47uF	20%	35V
C451	1-126-947-11	ELECT	47uF	20%	35V
C452	1-115-416-11	CERAMIC CHIP	0.001uF	5%	25V
C453	1-115-416-11	CERAMIC CHIP	0.001uF	5%	25V
C454	1-115-416-11	CERAMIC CHIP	0.001uF	5%	25V
C455	1-115-416-11	CERAMIC CHIP	0.001uF	5%	25V
C456	1-115-416-11	CERAMIC CHIP	0.001uF	5%	25V
C457	1-115-416-11	CERAMIC CHIP	0.001uF	5%	25V
C458	1-115-416-11	CERAMIC CHIP	0.001uF	5%	25V
C459	1-100-927-21	CERAMIC CHIP	0.001uF	10%	630V
C502	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C605	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C606	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C609	1-115-871-11	ELECT	1uF	20%	50V

Ref. No.	Part No.	Description			Remarks
C611	1-126-786-11	ELECT	47uF	20%	16V
C612	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C614	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C615	1-126-786-11	ELECT	47uF	20%	16V
C616	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C618	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C619	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C620	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V
C621	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V
C623	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C624	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C625	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C626	1-104-655-91	ELECT	470uF	20%	6.3V
C627	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C628	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C630	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C631	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C633	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C634	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C635	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C636	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C637	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C638	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C639	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C640	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C641	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C643	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C645	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C646	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C647	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C648	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C651	1-115-456-21	DOUBLE LAYER	0.22F		5.5V
C652	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C654	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C656	1-126-786-11	ELECT	47uF	20%	16V
C658	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C662	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C663	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C667	1-119-941-91	ELECT	470uF	20%	6.3V
C703	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C705	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C706	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C707	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C710	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C713	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C714	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C715	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C716	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C717	1-126-964-11	ELECT	10uF	20%	50V
C718	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C722	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C724	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C726	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C727	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C730	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C731	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C732	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C733	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C734	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C735	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C736	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C737	1-126-947-11	ELECT	47uF	20%	35V
C738	1-126-964-11	ELECT	10uF	20%	50V
C739	1-126-964-11	ELECT	10uF	20%	50V
C740	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C741	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C742	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C814	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C815	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1102	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1104	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1105	1-126-947-11	ELECT	47uF	20%	35V
C1106	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C1201	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C1202	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1203	1-126-947-11	ELECT	47uF	20%	35V

< CONNECTOR >

CN102	1-778-317-11	CONNECTOR, BOARD TO BOARD 13P	
CN501	1-818-859-11	CONNECTOR, BOARD TO BOARD 42P	
CN502	1-818-859-11	CONNECTOR, BOARD TO BOARD 42P	
CN602	1-774-768-31	CONNECTOR, FFC/FPC 17P	
* CN701	1-564-712-11	PIN, CONNECTOR (SMALL TYPE) 10P	
CN1201	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P	

< DIODE >

D108	6-500-451-01	DIODE	CMS04-TE12R
D109	8-719-053-18	DIODE	1SR154-400TE-25
D301	8-719-902-49	DIODE	BAV70
D302	8-719-053-18	DIODE	1SR154-400TE-25
D303	8-719-914-44	DIODE	DAP202K
D603	8-719-075-77	DIODE	EC10DA40-TE12
D604	8-719-056-82	DIODE	UDZ-TE-17-6.2B
D605	8-719-075-77	DIODE	EC10DA40-TE12
D606	8-719-988-61	DIODE	1SS355TE-17
D708	8-719-071-15	DIODE	HZM6.8ZWA1TL
D709	8-719-071-15	DIODE	HZM6.8ZWA1TL
D712	8-719-071-15	DIODE	HZM6.8ZWA1TL
D713	8-719-071-15	DIODE	HZM6.8ZWA1TL
D803	8-719-071-15	DIODE	HZM6.8ZWA1TL
D805	8-719-071-15	DIODE	HZM6.8ZWA1TL
D808	8-719-071-15	DIODE	HZM6.8ZWA1TL
D809	8-719-071-15	DIODE	HZM6.8ZWA1TL
D1102	8-719-071-15	DIODE	HZM6.8ZWA1TL

< TERMINAL >

* ET101	1-537-738-21	TERMINAL, EARTH	

< IC >

IC101	6-703-758-01	IC	PQ050DZ01ZPH
IC102	6-706-740-01	IC	BA00BC0WFP-E2
IC106	6-706-725-01	IC	PQ070XZ02ZPH
IC107	6-706-726-01	IC	PQ033DZ01ZPH
IC108	6-706-237-01	IC	PQ1MX55M2SPQ
IC111	6-706-724-01	IC	S-8520E25MC-BJKT2G
IC112	6-707-180-01	IC	PQ070XH02ZPH
IC201	6-707-181-01	IC	AK5366VQ-L
IC301	6-707-187-01	IC	HA17558AFEL-E
IC302	6-705-337-01	IC	TK11150CSCL-G

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Ref. No.	Part No.	Description	Remarks
IC401	8-749-925-00	IC TK11819MTL	
IC601	6-706-673-01	IC S-80852CNMC-B9DT2G	
IC602	6-703-225-01	IC S-80928CNMC-G8YT2G	
IC604	6-805-443-01	IC M306H3FCFP-061U2	
IC605	8-759-679-19	IC S-24C04BFJ-TB	
IC701	6-706-723-01	IC BH7623KS2	
IC1101	6-804-428-01	IC S3C80F9XKA-SO77	
IC1201	6-706-742-01	IC BD7800FP-E2	
		< JACK >	
J701	1-818-063-11	JACK, PIN (3P)	
J801	1-784-643-21	JACK BLOCK, PIN	
J802	1-818-063-11	JACK, PIN (3P)	
J1101	1-764-188-31	JACK (SMALL TYPE) (DIA. 3.5)	
		< COIL >	
L101	1-414-740-21	INDUCTOR 4.7uH	
L103	1-456-918-11	INDUCTOR 22uH	
L105	1-412-521-31	INDUCTOR 4.7uH	
L106	1-412-521-31	INDUCTOR 4.7uH	
L301	1-412-062-11	INDUCTOR 47uH	
L302	1-400-145-21	INDUCTOR 47uH	
L401	1-414-183-41	INDUCTOR 10uH	
L402	1-469-967-21	INDUCTOR 10uH	
L403	1-414-858-31	INDUCTOR 1mH	
L404	1-414-183-41	INDUCTOR 10uH	
L406	1-414-183-41	INDUCTOR 10uH	
L701	1-469-967-21	INDUCTOR 10uH	
L702	1-412-951-11	INDUCTOR 10uH	
L803	1-412-060-11	INDUCTOR 22uH	
L804	1-412-060-11	INDUCTOR 22uH	
		< IC LINK >	
PS101	1-576-416-21	FUSE 2A 36V	
PS601	1-576-570-21	FUSE, MICRO (1608 TYPE)	
PS602	1-576-863-21	FUSE 0.5A 32V	
		< TRANSISTOR >	
Q104	8-729-056-58	TRANSISTOR TPC6102 (TE85R)	
Q106	8-729-424-08	TRANSISTOR UN2111	
Q109	8-729-921-73	TRANSISTOR 2SD1781K-QR	
Q301	8-729-045-17	TRANSISTOR 2SB1561T100Q	
Q302	6-550-286-01	TRANSISTOR BC847CE6327	
Q303	8-729-045-17	TRANSISTOR 2SB1561T100Q	
Q304	8-729-421-19	TRANSISTOR UN2213	
Q306	8-729-027-53	TRANSISTOR DTC124TKA-T146	
Q308	6-550-280-01	TRANSISTOR BC857CE6327	
Q310	8-729-046-97	TRANSISTOR 2SD1938 (F) -T (TX).SO	
Q311	8-729-046-97	TRANSISTOR 2SD1938 (F) -T (TX).SO	
Q313	6-550-286-01	TRANSISTOR BC847CE6327	
Q315	6-550-280-01	TRANSISTOR BC857CE6327	
Q316	8-729-421-19	TRANSISTOR UN2213	
Q401	6-550-286-01	TRANSISTOR BC847CE6327	
Q402	8-729-421-22	TRANSISTOR UN2211	
Q403	8-729-010-25	TRANSISTOR MSD601-RT1	
Q404	8-729-904-87	TRANSISTOR 2SB1197K-R	
Q405	6-550-286-01	TRANSISTOR BC847CE6327	
Q407	8-729-421-19	TRANSISTOR UN2213	

Ref. No.	Part No.	Description			Remarks
Q602	8-729-045-17	TRANSISTOR	2SB1561T100Q		
Q604	6-550-280-01	TRANSISTOR	BC857CE6327		
Q605	6-550-286-01	TRANSISTOR	BC847CE6327		
Q606	8-729-421-19	TRANSISTOR	UN2213		
Q607	8-729-901-06	TRANSISTOR	DTA144EK		
Q608	8-729-048-28	TRANSISTOR	2SD1766-T100-QR		
Q616	8-729-421-22	TRANSISTOR	UN2211		
Q617	8-729-045-17	TRANSISTOR	2SB1561T100Q		
Q618	8-729-010-05	TRANSISTOR	MSB709-RT1		
Q619	8-729-421-22	TRANSISTOR	UN2211		
Q703	6-550-280-01	TRANSISTOR	BC857CE6327		
Q705	6-550-280-01	TRANSISTOR	BC857CE6327		
Q807	8-729-421-19	TRANSISTOR	UN2213		
Q808	8-729-901-06	TRANSISTOR	DTA144EK		
Q1101	8-729-045-17	TRANSISTOR	2SB1561T100Q		
Q1102	8-729-045-17	TRANSISTOR	2SB1561T100Q		
Q1103	8-729-421-22	TRANSISTOR	UN2211		
Q1201	8-729-421-19	TRANSISTOR	UN2213		
		< RESISTOR >			
R102	1-216-864-11	SHORT CHIP	0		
R112	1-216-864-11	SHORT CHIP	0		
R116	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R117	1-218-865-11	METAL CHIP	5.6K	0.5%	1/10W
R118	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R121	1-216-295-91	SHORT CHIP	0		
R125	1-216-295-91	SHORT CHIP	0		
R129	1-216-295-91	SHORT CHIP	0		
R130	1-216-295-91	SHORT CHIP	0		
R131	1-216-033-00	RES-CHIP	220	5%	1/10W
R134	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R135	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W
R136	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R137	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R138	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R139	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R143	1-216-295-91	SHORT CHIP	0		
R144	1-216-295-91	SHORT CHIP	0		
R148	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R150	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R151	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R152	1-216-833-11	METAL CHIP	10K	5%	1/10W
R156	1-216-295-91	SHORT CHIP	0		
R157	1-216-295-91	SHORT CHIP	0		
R163	1-216-295-91	SHORT CHIP	0		
R175	1-216-295-91	SHORT CHIP	0		
R177	1-216-296-11	SHORT CHIP	0		
R178	1-216-864-11	SHORT CHIP	0		
R179	1-216-864-11	SHORT CHIP	0		
R180	1-216-864-11	SHORT CHIP	0		
R182	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R183	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W
R185	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R186	1-216-295-91	SHORT CHIP	0		
R188	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R206	1-216-864-11	SHORT CHIP	0		
R211	1-216-864-11	SHORT CHIP	0		
R218	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R219	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R220	1-218-887-11	METAL CHIP	47K	0.5%	1/10W

Ref. No.	Part No.	Description			Remarks
R221	1-216-841-11	METAL CHIP	47K	5%	1/10W
R222	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R224	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R225	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R226	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R227	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R228	1-216-841-11	METAL CHIP	47K	5%	1/10W
R229	1-216-837-11	METAL CHIP	22K	5%	1/10W
R230	1-216-837-11	METAL CHIP	22K	5%	1/10W
R231	1-216-837-11	METAL CHIP	22K	5%	1/10W
R232	1-216-801-11	METAL CHIP	22	5%	1/10W
R233	1-216-801-11	METAL CHIP	22	5%	1/10W
R235	1-216-833-11	METAL CHIP	10K	5%	1/10W
R236	1-216-833-11	METAL CHIP	10K	5%	1/10W
R237	1-216-833-11	METAL CHIP	10K	5%	1/10W
R238	1-216-809-11	METAL CHIP	100	5%	1/10W
R239	1-216-809-11	METAL CHIP	100	5%	1/10W
R240	1-216-801-11	METAL CHIP	22	5%	1/10W
R245	1-216-801-11	METAL CHIP	22	5%	1/10W
R301	1-216-049-11	RES-CHIP	1K	5%	1/10W
R302	1-216-041-00	RES-CHIP	470	5%	1/10W
R307	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R308	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R309	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R310	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R311	1-216-849-11	METAL CHIP	220K	5%	1/10W
R312	1-216-817-11	METAL CHIP	470	5%	1/10W
R313	1-216-833-11	METAL CHIP	10K	5%	1/10W
R314	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R315	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R316	1-216-833-11	METAL CHIP	10K	5%	1/10W
R317	1-216-845-11	METAL CHIP	100K	5%	1/10W
R318	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R319	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R320	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R321	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R322	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
R323	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R324	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R325	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R327	1-216-817-11	METAL CHIP	470	5%	1/10W
R328	1-216-817-11	METAL CHIP	470	5%	1/10W
R329	1-216-833-11	METAL CHIP	10K	5%	1/10W
R331	1-216-841-11	METAL CHIP	47K	5%	1/10W
R332	1-216-841-11	METAL CHIP	47K	5%	1/10W
R333	1-216-833-11	METAL CHIP	10K	5%	1/10W
R334	1-216-841-11	METAL CHIP	47K	5%	1/10W
R337	1-216-833-11	METAL CHIP	10K	5%	1/10W
R341	1-216-833-11	METAL CHIP	10K	5%	1/10W
R342	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R343	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R345	1-216-845-11	METAL CHIP	100K	5%	1/10W
R347	1-216-821-11	METAL CHIP	1K	5%	1/10W
R348	1-216-821-11	METAL CHIP	1K	5%	1/10W
R353	1-216-817-11	METAL CHIP	470	5%	1/10W
R354	1-216-817-11	METAL CHIP	470	5%	1/10W
R355	1-216-817-11	METAL CHIP	470	5%	1/10W
R356	1-216-817-11	METAL CHIP	470	5%	1/10W
R358	1-216-807-11	METAL CHIP	68	5%	1/10W
R362	1-216-809-11	METAL CHIP	100	5%	1/10W
R363	1-216-833-11	METAL CHIP	10K	5%	1/10W
R364	1-216-864-11	SHORT CHIP	0		
R365	1-216-864-11	SHORT CHIP	0		
R366	1-216-864-11	SHORT CHIP	0		
R367	1-216-864-11	SHORT CHIP	0		
R386	1-216-864-11	SHORT CHIP	0		
R388	1-216-821-11	METAL CHIP	1K	5%	1/10W
R389	1-216-813-11	METAL CHIP	220	5%	1/10W
R403	1-216-845-11	METAL CHIP	100K	5%	1/10W
R404	1-216-845-11	METAL CHIP	100K	5%	1/10W
R405	1-216-821-11	METAL CHIP	1K	5%	1/10W
R406	1-216-833-11	METAL CHIP	10K	5%	1/10W
R407	1-216-821-11	METAL CHIP	1K	5%	1/10W
R409	1-216-821-11	METAL CHIP	1K	5%	1/10W
R410	1-216-809-11	METAL CHIP	100	5%	1/10W
R411	1-216-809-11	METAL CHIP	100	5%	1/10W
R412	1-216-809-11	METAL CHIP	100	5%	1/10W
R413	1-216-817-11	METAL CHIP	470	5%	1/10W
R414	1-216-845-11	METAL CHIP	100K	5%	1/10W
R415	1-216-838-11	METAL CHIP	27K	5%	1/10W
R418	1-216-845-11	METAL CHIP	100K	5%	1/10W
R420	1-216-809-11	METAL CHIP	100	5%	1/10W
R428	1-216-817-11	METAL CHIP	470	5%	1/10W
R429	1-216-817-11	METAL CHIP	470	5%	1/10W
R475	1-216-864-11	SHORT CHIP	0		
R480	1-216-295-91	SHORT CHIP	0		
R481	1-216-295-91	SHORT CHIP	0		
R482	1-216-809-11	METAL CHIP	100	5%	1/10W
R483	1-216-809-11	METAL CHIP	100	5%	1/10W
R614	1-216-833-11	METAL CHIP	10K	5%	1/10W
R620	1-216-813-11	METAL CHIP	220	5%	1/10W
R629	1-216-817-11	METAL CHIP	470	5%	1/10W
R630	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R631	1-218-852-11	METAL CHIP	1.6K	0.5%	1/10W
R632	1-216-855-11	METAL CHIP	680K	5%	1/10W
R633	1-216-864-11	SHORT CHIP	0		
R634	1-216-864-11	SHORT CHIP	0		
R637	1-216-853-11	METAL CHIP	470K	5%	1/10W
R638	1-216-833-11	METAL CHIP	10K	5%	1/10W
R640	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R641	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R642	1-216-841-11	METAL CHIP	47K	5%	1/10W
R644	1-216-833-11	METAL CHIP	10K	5%	1/10W
R646	1-216-809-11	METAL CHIP	100	5%	1/10W
R647	1-216-833-11	METAL CHIP	10K	5%	1/10W
R648	1-216-851-11	METAL CHIP	330K	5%	1/10W
R650	1-216-817-11	METAL CHIP	470	5%	1/10W
R651	1-216-864-11	SHORT CHIP	0		
R652	1-216-809-11	METAL CHIP	100	5%	1/10W
R653	1-216-809-11	METAL CHIP	100	5%	1/10W
R654	1-216-809-11	METAL CHIP	100	5%	1/10W
R655	1-216-809-11	METAL CHIP	100	5%	1/10W
R656	1-216-833-11	METAL CHIP	10K	5%	1/10W
R657	1-216-833-11	METAL CHIP	10K	5%	1/10W
R658	1-216-864-11	SHORT CHIP	0		
R660	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R661	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R663	1-216-833-11	METAL CHIP	10K	5%	1/10W
R664	1-216-809-11	METAL CHIP	100	5%	1/10W
R665	1-216-833-11	METAL CHIP	10K	5%	1/10W

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Ref. No.	Part No.	Description			Remarks
R668	1-216-809-11	METAL CHIP	100	5%	1/10W
R669	1-216-809-11	METAL CHIP	100	5%	1/10W
R670	1-216-809-11	METAL CHIP	100	5%	1/10W
R671	1-218-289-11	METAL CHIP	510	5%	1/10W
R672	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R673	1-216-833-11	METAL CHIP	10K	5%	1/10W
R674	1-216-821-11	METAL CHIP	1K	5%	1/10W
R675	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R676	1-216-833-11	METAL CHIP	10K	5%	1/10W
R677	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R678	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R680	1-216-833-11	METAL CHIP	10K	5%	1/10W
R681	1-216-864-11	SHORT CHIP	0		
R686	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R687	1-216-833-11	METAL CHIP	10K	5%	1/10W
R688	1-216-833-11	METAL CHIP	10K	5%	1/10W
R689	1-216-833-11	METAL CHIP	10K	5%	1/10W
R690	1-216-833-11	METAL CHIP	10K	5%	1/10W
R692	1-216-864-11	SHORT CHIP	0		
R693	1-216-809-11	METAL CHIP	100	5%	1/10W
R694	1-216-809-11	METAL CHIP	100	5%	1/10W
R696	1-216-817-11	METAL CHIP	470	5%	1/10W
R699	1-216-809-11	METAL CHIP	100	5%	1/10W
R703	1-216-864-11	SHORT CHIP	0		
R706	1-216-845-11	METAL CHIP	100K	5%	1/10W
R707	1-216-864-11	SHORT CHIP	0		
R711	1-216-851-11	METAL CHIP	330K	5%	1/10W
R712	1-216-851-11	METAL CHIP	330K	5%	1/10W
R722	1-216-801-11	METAL CHIP	22	5%	1/10W
R725	1-216-809-11	METAL CHIP	100	5%	1/10W
R727	1-218-285-11	METAL CHIP	75	5%	1/10W
R730	1-218-285-11	METAL CHIP	75	5%	1/10W
R731	1-218-285-11	METAL CHIP	75	5%	1/10W
R732	1-218-285-11	METAL CHIP	75	5%	1/10W
R733	1-216-864-11	SHORT CHIP	0		
R734	1-218-285-11	METAL CHIP	75	5%	1/10W
R736	1-216-801-11	METAL CHIP	22	5%	1/10W
R739	1-218-285-11	METAL CHIP	75	5%	1/10W
R740	1-218-285-11	METAL CHIP	75	5%	1/10W
R741	1-218-285-11	METAL CHIP	75	5%	1/10W
R742	1-216-809-11	METAL CHIP	100	5%	1/10W
R743	1-218-285-11	METAL CHIP	75	5%	1/10W
R744	1-216-295-91	SHORT CHIP	0		
R746	1-216-864-11	SHORT CHIP	0		
R750	1-216-864-11	SHORT CHIP	0		
R751	1-216-853-11	METAL CHIP	470K	5%	1/10W
R752	1-216-853-11	METAL CHIP	470K	5%	1/10W
R822	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R824	1-216-833-11	METAL CHIP	10K	5%	1/10W
R825	1-216-833-11	METAL CHIP	10K	5%	1/10W
R826	1-216-807-11	METAL CHIP	68	5%	1/10W
R827	1-216-807-11	METAL CHIP	68	5%	1/10W
R828	1-216-807-11	METAL CHIP	68	5%	1/10W
R829	1-216-807-11	METAL CHIP	68	5%	1/10W
R830	1-216-807-11	METAL CHIP	68	5%	1/10W
R831	1-216-807-11	METAL CHIP	68	5%	1/10W
R832	1-216-807-11	METAL CHIP	68	5%	1/10W
R833	1-216-807-11	METAL CHIP	68	5%	1/10W
R834	1-216-807-11	METAL CHIP	68	5%	1/10W
R852	1-216-295-91	SHORT CHIP	0		

Ref. No.	Part No.	Description			Remarks
R1102	1-216-864-11	SHORT CHIP	0		
R1103	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1104	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1106	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1107	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1108	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1110	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1111	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1112	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1113	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1114	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1115	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1116	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1117	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1118	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1119	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1120	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1121	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1122	1-216-037-00	RES-CHIP	330	5%	1/10W
R1123	1-216-037-00	RES-CHIP	330	5%	1/10W
R1124	1-216-864-11	SHORT CHIP	0		
R1126	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1201	1-216-295-91	SHORT CHIP	0		
R1202	1-218-894-11	METAL CHIP	91K	0.5%	1/10W
R1203	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R1204	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R1205	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1605	1-216-809-11	METAL CHIP	100	5%	1/10W
R1606	1-216-809-11	METAL CHIP	100	5%	1/10W
R1607	1-216-809-11	METAL CHIP	100	5%	1/10W
R1608	1-216-864-11	SHORT CHIP	0		
R1610	1-216-809-11	METAL CHIP	100	5%	1/10W
R1611	1-216-809-11	METAL CHIP	100	5%	1/10W
R1612	1-216-809-11	METAL CHIP	100	5%	1/10W
R1616	1-216-809-11	METAL CHIP	100	5%	1/10W
R1617	1-216-864-11	SHORT CHIP	0		
R1619	1-216-809-11	METAL CHIP	100	5%	1/10W
R1620	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1623	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1634	1-216-809-11	METAL CHIP	100	5%	1/10W
R1635	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1638	1-216-864-11	SHORT CHIP	0		
R1639	1-216-864-11	SHORT CHIP	0		
R1641	1-216-809-11	METAL CHIP	100	5%	1/10W
R1643	1-216-809-11	METAL CHIP	100	5%	1/10W
R1645	1-216-809-11	METAL CHIP	100	5%	1/10W
R1650	1-216-809-11	METAL CHIP	100	5%	1/10W
R1651	1-216-809-11	METAL CHIP	100	5%	1/10W
R1653	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1654	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1655	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1656	1-216-849-11	METAL CHIP	220K	5%	1/10W
R1657	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1658	1-216-815-11	METAL CHIP	330	5%	1/10W
R1664	1-216-864-11	SHORT CHIP	0		
R1670	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1672	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1684	1-216-864-11	SHORT CHIP	0		
R1687	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1690	1-216-057-00	RES-CHIP	2.2K	5%	1/10W

Ref. No.	Part No.	Description				Remarks
		< THERMISTOR >				
TH001	1-803-384-11	THERMISTOR (1608)				
		< TUNER UNIT >				
TU401	1-693-690-11	TUNER (BTF-3WA401)				
		< VIBRATOR >				
X601	1-781-913-11	VIBRATOR, CRYSTAL (32.768MHz)				
X602	1-813-436-11	VIBRATOR, CRYSTAL (SMD) (10MHz)				
X1101	1-781-472-21	VIBRATOR, CERAMIC (8MHz)				
		CN-243 (SS) BOARD, COMPLETE				(NOT SUPPLIED)
		**********				
		< CONNECTOR >				
CN1801	1-818-021-11	PIN, CONNECTOR 40P				
CN1802	1-818-005-61	CONNECTOR, FFC/FPC 40P				
*	A-1129-157-A	FL-144 (BS) COMPL				
		**********				
		< CAPACITOR >				
C1303	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	
C1304	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	
C1306	1-125-972-91	ELECT	100uF	20%	16V	
C1307	1-124-589-11	ELECT	47uF	20%	16V	
C1308	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1309	1-106-363-00	MYLAR	0.0068uF	5%	100V	
C1311	1-162-922-11	CERAMIC CHIP	39PF	5%	50V	
C1312	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V	
C1314	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V	
C1315	1-128-131-11	ELECT	22uF	20%	50V	
C1318	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V	
		< CONNECTOR >				
CN1302	1-774-729-21	PIN, CONNECTOR (PC BOARD) 10P				
		< DIODE >				
D1303	8-719-067-40	DIODE STZ6.8N-T146				
D1304	8-719-067-40	DIODE STZ6.8N-T146				
D1305	8-719-067-40	DIODE STZ6.8N-T146				
D1306	8-719-067-40	DIODE STZ6.8N-T146				
D1307	8-719-067-40	DIODE STZ6.8N-T146				
D1308	8-719-067-40	DIODE STZ6.8N-T146				
D1312	8-719-988-61	DIODE 1SS355TE-17				
D1313	8-719-988-61	DIODE 1SS355TE-17				
D1314	8-719-988-61	DIODE 1SS355TE-17				
D1315	8-719-988-61	DIODE 1SS355TE-17				
D1317	8-719-056-82	DIODE UDZ-TE-17-6.2B				
		< IC >				
IC1301	6-706-722-01	IC ML9208-06MBZ03W				

Ref. No.	Part No.	Description				Remarks
		< JACK >				
J1301	1-780-049-11	TERMINAL BOARD (S TERMINAL+3P)				
		< COIL >				
L1301	1-412-537-31	INDUCTOR	100uH			
		< TRANSISTOR >				
Q1303	8-729-901-88	TRANSISTOR	2SC2411K-CR			
Q1304	8-729-901-88	TRANSISTOR	2SC2411K-CR			
		< RESISTOR >				
R1301	1-218-285-11	METAL CHIP	75	5%	1/10W	
R1302	1-218-285-11	METAL CHIP	75	5%	1/10W	
R1303	1-216-864-11	SHORT CHIP	0			
R1304	1-216-864-11	SHORT CHIP	0			
R1305	1-216-864-11	SHORT CHIP	0			
R1306	1-218-285-11	METAL CHIP	75	5%	1/10W	
R1310	1-216-849-11	METAL CHIP	220K	5%	1/10W	
R1311	1-216-849-11	METAL CHIP	220K	5%	1/10W	
R1314	1-216-827-11	METAL CHIP	3.3K	5%	1/10W	
R1316	1-216-809-11	METAL CHIP	100	5%	1/10W	
R1317	1-216-809-11	METAL CHIP	100	5%	1/10W	
R1318	1-216-809-11	METAL CHIP	100	5%	1/10W	
R1319	1-216-809-11	METAL CHIP	100	5%	1/10W	
R1320	1-216-827-11	METAL CHIP	3.3K	5%	1/10W	
R1323	1-216-838-11	METAL CHIP	27K	5%	1/10W	
R1324	1-216-864-11	SHORT CHIP	0			
R1325	1-216-864-11	SHORT CHIP	0			
R1326	1-216-864-11	SHORT CHIP	0			
R1327	1-216-296-11	SHORT CHIP	0			
		< SWITCH >				
S1302	1-771-410-21	SWITCH, TACTILE (POWER)				
		< TRANSFORMER >				
T1301	1-443-502-11	TRANSFORMER, DC-DC CONVERTER				
*	A-1129-159-A	FR-249 (AS) COMPL				
		**********				
		< CAPACITOR >				
C102	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V	
C103	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V	
C104	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
		< CONNECTOR >				
CN101	1-793-600-11	CONNECTOR, FFC/FPC (ZIF) 17P				
CN102	1-794-479-11	CONNECTOR, FPC/FFC 9P				
* CN103	1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P				
CN104	1-785-828-21	CONNECTOR, SQUARE TYPE 4P				
		< DIODE >				
D102	8-719-077-79	DIODE SLR-332VRT32				
D103	8-719-077-79	DIODE SLR-332VRT32				
D104	6-500-176-01	DIODE EB3804X-TP-J555K				
D105	8-719-084-27	DIODE SLI-343YCT32WST				

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Ref. No.	Part No.	Description			Remarks
		< IC >			
IC101	6-600-392-01	IC GP1UM27XK0SF			
IC102	6-706-783-01	IC BU2050F-E2			
		< JUMPER RESISTOR >			
JR001	1-216-296-11	SHORT CHIP	0		
JR002	1-216-295-91	SHORT CHIP	0		
JR003	1-216-296-11	SHORT CHIP	0		
JR004	1-216-296-11	SHORT CHIP	0		
JR005	1-216-296-11	SHORT CHIP	0		
JR006	1-216-296-11	SHORT CHIP	0		
JR007	1-216-296-11	SHORT CHIP	0		
JR008	1-216-295-91	SHORT CHIP	0		
JR009	1-216-296-11	SHORT CHIP	0		
JR010	1-216-295-91	SHORT CHIP	0		
JR011	1-216-295-91	SHORT CHIP	0		
JR012	1-216-296-11	SHORT CHIP	0		
JR014	1-216-295-91	SHORT CHIP	0		
JR015	1-216-296-11	SHORT CHIP	0		
JR016	1-216-296-11	SHORT CHIP	0		
JR017	1-216-296-11	SHORT CHIP	0		
JR018	1-216-295-91	SHORT CHIP	0		
JR019	1-216-296-11	SHORT CHIP	0		
JR020	1-216-296-11	SHORT CHIP	0		
JR021	1-216-295-91	SHORT CHIP	0		
JR022	1-216-295-91	SHORT CHIP	0		
JR023	1-216-295-91	SHORT CHIP	0		
JR024	1-216-296-11	SHORT CHIP	0		
JR025	1-216-295-91	SHORT CHIP	0		
JR026	1-216-296-11	SHORT CHIP	0		
JR027	1-216-295-91	SHORT CHIP	0		
JR029	1-216-295-91	SHORT CHIP	0		
JR030	1-216-295-91	SHORT CHIP	0		
JR031	1-216-295-91	SHORT CHIP	0		
JR032	1-216-295-91	SHORT CHIP	0		
JR033	1-216-296-11	SHORT CHIP	0		
JR035	1-216-295-91	SHORT CHIP	0		
JR036	1-216-295-91	SHORT CHIP	0		
JR071	1-216-296-11	SHORT CHIP	0		
JR072	1-216-296-11	SHORT CHIP	0		
JR073	1-216-295-91	SHORT CHIP	0		
JR074	1-216-295-91	SHORT CHIP	0		
JR075	1-216-295-91	SHORT CHIP	0		
JR077	1-216-295-91	SHORT CHIP	0		
JR078	1-216-296-11	SHORT CHIP	0		
JR080	1-216-296-11	SHORT CHIP	0		
		< TRANSISTOR >			
Q101	8-729-027-43	TRANSISTOR	DTC114EKA-T146		
Q102	8-729-010-05	TRANSISTOR	MSB709-RT1		
		< RESISTOR >			
R101	1-216-295-91	SHORT CHIP	0		
R102	1-216-864-11	SHORT CHIP	0		
R103	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R104	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R105	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R106	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R109	1-216-864-11	SHORT CHIP	0		
R110	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R111	1-216-832-11	METAL CHIP	8.2K	5%	1/10W
R112	1-216-837-11	METAL CHIP	22K	5%	1/10W
R114	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R115	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R116	1-216-813-11	METAL CHIP	220	5%	1/10W
R117	1-216-813-11	METAL CHIP	220	5%	1/10W
R118	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R119	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R120	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R121	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R122	1-216-832-11	METAL CHIP	8.2K	5%	1/10W
R123	1-216-837-11	METAL CHIP	22K	5%	1/10W
R124	1-216-864-11	SHORT CHIP	0		
R125	1-216-811-11	METAL CHIP	150	5%	1/10W
R126	1-216-818-11	METAL CHIP	560	5%	1/10W
R129	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R130	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R131	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R132	1-216-832-11	METAL CHIP	8.2K	5%	1/10W
R134	1-216-837-11	METAL CHIP	22K	5%	1/10W
R136	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R137	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R138	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R139	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
		< SWITCH >			
S101	1-771-410-21	SWITCH, TACTILE (REC_STOP)			
S102	1-771-410-21	SWITCH, TACTILE (REC_PAUSE)			
S103	1-771-410-21	SWITCH, TACTILE (REC_DUB)			
S104	1-771-410-21	SWITCH, TACTILE (STOP)			
S105	1-771-410-21	SWITCH, TACTILE (PAUSE)			
S106	1-771-410-21	SWITCH, TACTILE (PLAY)			
S107	1-771-410-21	SWITCH, TACTILE (TOOL)			
S108	1-771-410-21	SWITCH, TACTILE (CH+)			
S109	1-771-410-21	SWITCH, TACTILE (CH-)			
S110	1-771-410-21	SWITCH, TACTILE (INPUT_SEL)			
S112	1-771-410-21	SWITCH, TACTILE (DVD)			
S113	1-771-410-21	SWITCH, TACTILE (HDD)			
S114	1-771-410-21	SWITCH, TACTILE (SYS_MENU)			
S115	1-771-410-21	SWITCH, TACTILE (PPEV)			
S116	1-771-410-21	SWITCH, TACTILE (REC_MODE)			
S117	1-771-410-21	SWITCH, TACTILE (TV_GUIDE)			
S119	1-771-410-21	SWITCH, TACTILE (RETURN)			
S120	1-771-410-21	SWITCH, TACTILE (NEXT)			
S121	1-771-410-21	SWITCH, TACTILE (OPEN/CLOSE)			
S122	1-771-410-21	SWITCH, TACTILE (DUB)			
S123	1-786-793-11	SWITCH, TACTILE (L/R/UP/DOWN/ENTER)			

Ref. No.	Part No.	Description			Remarks
*	A-1129-161-A	MI-054 (AS) COMPL			
		**********			
		< CAPACITOR >			
C101	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C102	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C103	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C104	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C105	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C106	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C107	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C108	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C114	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C116	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C125	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C126	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C127	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C152	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C153	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C154	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C155	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C156	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C157	1-128-934-61	CERAMIC CHIP	0.33uF	10%	10V
C158	1-164-677-61	CERAMIC CHIP	0.033uF	10%	16V
C159	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C160	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C161	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C162	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C163	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C164	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C165	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C166	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C167	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C168	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C169	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C170	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C171	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C172	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C173	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C174	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C175	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C176	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C177	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C178	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C179	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C180	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C181	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C182	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C183	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C184	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C185	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C186	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C187	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C201	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C202	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C204	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C205	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C206	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C207	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C208	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C209	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C212	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C213	1-218-953-11	RES-CHIP	1K	5%	1/16W
C214	1-218-953-11	RES-CHIP	1K	5%	1/16W
C215	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C216	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C217	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C218	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C219	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C220	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C227	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C233	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C235	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C236	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C237	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C242	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C243	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C244	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C301	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C302	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C303	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C304	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C305	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C306	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C307	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C310	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C311	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C312	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C313	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C314	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C315	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C316	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C317	1-117-446-81	CERAMIC CHIP	3900PF	10%	16V
C318	1-117-949-81	CERAMIC CHIP	820PF	10%	50V
C319	1-126-204-11	ELECT CHIP	47uF	20%	16V
C320	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C321	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C322	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C323	1-128-994-21	ELECT CHIP	47uF	20%	10V
C326	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C327	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C328	1-128-994-21	ELECT CHIP	47uF	20%	10V
C329	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C330	1-128-994-21	ELECT CHIP	47uF	20%	10V
C331	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C332	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C333	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C334	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C335	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C401	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C402	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C403	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C404	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C405	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C503	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C504	1-164-874-11	CERAMIC CHIP	100PF	5%	50V

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Ref. No.	Part No.	Description			Remarks
		< CONNECTOR >			
CN101	1-818-857-51	CONNECTOR, FFC/FPC 40P			
CN201	1-818-086-21	HDMI CONNECTOR			
* CN401	1-691-591-11	PIN, CONNECTOR (1.5MM) (SMD) 8P			
* CN501	1-573-768-21	PIN, CONNECTOR (1.5MM) (SMD) 5P			
		< DIODE >			
D208	8-719-069-56	DIODE UDZSTE-176.2B			
D501	8-719-071-15	DIODE HZM6.8ZWA1TL			
D502	8-719-071-15	DIODE HZM6.8ZWA1TL			
		< FLUORESCENT INDICATOR TUBE >			
FL105	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL106	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL107	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL201	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL202	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL203	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL204	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL205	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL301	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL401	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
		< IC >			
IC101	6-708-021-01	IC CXD9866R			
IC102	6-705-992-11	IC HY57V161610ETP-7DR			
IC203	6-703-046-01	IC SN74LVC1G08DCKR			
IC205	6-702-302-01	IC TK11133CSCL-G			
IC207	6-705-338-01	IC TK11250CMCL-G			
IC301	6-702-301-01	IC TK11125CSCL-G			
IC302	6-701-079-01	IC ADV7300AKST			
IC304	6-707-155-01	IC NJM2588V (TE2)			
IC306	6-705-337-01	IC TK11150CSCL-G			
IC307	6-706-743-01	IC TK72250CMCL-G			
IC401	8-759-082-59	IC TC7W32FU			
IC402	6-805-772-01	IC MB89F538L-USA001			
		< JACK >			
J501	1-818-503-11	JACK (DIA 3.5), SMALL TYPE			
		< COIL >			
L101	1-412-064-11	INDUCTOR	100uH		
L102	1-412-064-11	INDUCTOR	100uH		
L301	1-412-060-11	INDUCTOR	22uH		
L303	1-412-060-11	INDUCTOR	22uH		
L304	1-412-060-11	INDUCTOR	22uH		
		< IC LINK >			
PS101	1-576-416-21	FUSE 2A 36V			
		< RESISTOR >			
R101	1-218-941-81	RES-CHIP	100	5%	1/16W
R102	1-218-990-81	SHORT CHIP	0		
R103	1-218-990-81	SHORT CHIP	0		
R104	1-218-990-81	SHORT CHIP	0		
R105	1-218-933-11	RES-CHIP	22	5%	1/16W
R106	1-218-933-11	RES-CHIP	22	5%	1/16W
R107	1-218-941-81	RES-CHIP	100	5%	1/16W
R108	1-218-933-11	RES-CHIP	22	5%	1/16W
R109	1-218-929-11	RES-CHIP	10	5%	1/16W
R110	1-218-990-81	SHORT CHIP	0		
R111	1-218-990-81	SHORT CHIP	0		
R122	1-218-941-81	RES-CHIP	100	5%	1/16W
R124	1-218-937-11	RES-CHIP	47	5%	1/16W
R125	1-218-937-11	RES-CHIP	47	5%	1/16W
R126	1-218-929-11	RES-CHIP	10	5%	1/16W
R131	1-218-990-81	SHORT CHIP	0		
R132	1-218-990-81	SHORT CHIP	0		
R133	1-218-990-81	SHORT CHIP	0		
R134	1-218-990-81	SHORT CHIP	0		
R135	1-218-937-11	RES-CHIP	47	5%	1/16W
R136	1-218-933-11	RES-CHIP	22	5%	1/16W
R137	1-218-990-81	SHORT CHIP	0		
R140	1-216-295-91	SHORT CHIP	0		
R143	1-218-990-81	SHORT CHIP	0		
R195	1-218-990-81	SHORT CHIP	0		
R197	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R198	1-216-820-11	METAL CHIP	820	5%	1/10W
R199	1-218-990-81	SHORT CHIP	0		
R206	1-218-990-81	SHORT CHIP	0		
R208	1-218-990-81	SHORT CHIP	0		
R242	1-218-941-81	RES-CHIP	100	5%	1/16W
R244	1-218-965-11	RES-CHIP	10K	5%	1/16W
R247	1-218-965-11	RES-CHIP	10K	5%	1/16W
R248	1-220-179-11	RES-CHIP	510	5%	1/16W
R251	1-218-973-11	RES-CHIP	47K	5%	1/16W
R252	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R268	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R269	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R271	1-218-990-81	SHORT CHIP	0		
R272	1-218-990-81	SHORT CHIP	0		
R273	1-218-990-81	SHORT CHIP	0		
R274	1-218-990-81	SHORT CHIP	0		
R276	1-218-990-81	SHORT CHIP	0		
R278	1-218-990-81	SHORT CHIP	0		
R279	1-218-990-81	SHORT CHIP	0		
R280	1-218-990-81	SHORT CHIP	0		
R281	1-218-990-81	SHORT CHIP	0		
R282	1-218-990-81	SHORT CHIP	0		
R286	1-218-990-81	SHORT CHIP	0		
R287	1-218-929-11	RES-CHIP	10	5%	1/16W
R288	1-218-929-11	RES-CHIP	10	5%	1/16W
R289	1-218-929-11	RES-CHIP	10	5%	1/16W
R290	1-218-929-11	RES-CHIP	10	5%	1/16W
R291	1-218-929-11	RES-CHIP	10	5%	1/16W
R292	1-218-929-11	RES-CHIP	10	5%	1/16W
R293	1-218-929-11	RES-CHIP	10	5%	1/16W
R294	1-218-929-11	RES-CHIP	10	5%	1/16W
R298	1-218-990-81	SHORT CHIP	0		
R306	1-218-990-81	SHORT CHIP	0		
R307	1-218-941-81	RES-CHIP	100	5%	1/16W
R308	1-218-941-81	RES-CHIP	100	5%	1/16W
R315	1-218-990-81	SHORT CHIP	0		
R316	1-218-965-11	RES-CHIP	10K	5%	1/16W
R318	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R319	1-218-955-11	RES-CHIP	1.5K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R320	1-218-941-81	RES-CHIP	100	5%	1/16W
R325	1-218-951-11	RES-CHIP	680	5%	1/16W
R326	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R327	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R328	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R329	1-218-973-11	RES-CHIP	47K	5%	1/16W
R330	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R331	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R333	1-208-874-81	METAL CHIP	300	0.5%	1/16W
R336	1-218-969-11	RES-CHIP	22K	5%	1/16W
R343	1-218-965-11	RES-CHIP	10K	5%	1/16W
R344	1-218-965-11	RES-CHIP	10K	5%	1/16W
R345	1-218-977-11	RES-CHIP	100K	5%	1/16W
R347	1-218-990-81	SHORT CHIP	0		
R348	1-218-990-81	SHORT CHIP	0		
R349	1-218-990-81	SHORT CHIP	0		
R350	1-218-990-81	SHORT CHIP	0		
R351	1-218-990-81	SHORT CHIP	0		
R352	1-218-990-81	SHORT CHIP	0		
R407	1-218-990-81	SHORT CHIP	0		
R413	1-218-965-11	RES-CHIP	10K	5%	1/16W
R418	1-218-965-11	RES-CHIP	10K	5%	1/16W
R422	1-218-965-11	RES-CHIP	10K	5%	1/16W
R424	1-218-965-11	RES-CHIP	10K	5%	1/16W
R426	1-218-965-11	RES-CHIP	10K	5%	1/16W
R428	1-218-965-11	RES-CHIP	10K	5%	1/16W
R429	1-218-953-11	RES-CHIP	1K	5%	1/16W
R430	1-218-953-11	RES-CHIP	1K	5%	1/16W
R434	1-218-965-11	RES-CHIP	10K	5%	1/16W
R435	1-218-965-11	RES-CHIP	10K	5%	1/16W
R436	1-218-965-11	RES-CHIP	10K	5%	1/16W
R439	1-218-941-81	RES-CHIP	100	5%	1/16W
R443	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R444	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R454	1-218-953-11	RES-CHIP	1K	5%	1/16W
R455	1-218-953-11	RES-CHIP	1K	5%	1/16W
R457	1-218-953-11	RES-CHIP	1K	5%	1/16W
R458	1-218-953-11	RES-CHIP	1K	5%	1/16W
R466	1-218-990-81	SHORT CHIP	0		
R501	1-218-945-11	RES-CHIP	220	5%	1/16W
R503	1-218-945-11	RES-CHIP	220	5%	1/16W
R504	1-218-953-11	RES-CHIP	1K	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB101	1-234-371-21	RES, NETWORK 47 (1005X4)			
RB102	1-234-371-21	RES, NETWORK 47 (1005X4)			
RB103	1-242-962-21	RES, NETWORK 82X4 (1005)			
RB104	1-242-962-21	RES, NETWORK 82X4 (1005)			
RB105	1-242-962-21	RES, NETWORK 82X4 (1005)			
RB106	1-242-962-21	RES, NETWORK 82X4 (1005)			
RB111	1-234-400-21	CONDUCTOR, NETWORK (2010X4)			
RB112	1-234-400-21	CONDUCTOR, NETWORK (2010X4)			
RB113	1-234-371-21	RES, NETWORK 47 (1005X4)			
RB114	1-234-371-21	RES, NETWORK 47 (1005X4)			
RB115	1-234-371-21	RES, NETWORK 47 (1005X4)			
RB116	1-234-371-21	RES, NETWORK 47 (1005X4)			
RB117	1-234-370-21	RES, NETWORK 22 (1005X4)			
RB118	1-234-370-21	RES, NETWORK 22 (1005X4)			
RB119	1-234-370-21	RES, NETWORK 22 (1005X4)			

Ref. No.	Part No.	Description	Remarks
RB125	1-242-962-21	RES, NETWORK 82X4 (1005)	
RB126	1-242-962-21	RES, NETWORK 82X4 (1005)	
RB127	1-242-962-21	RES, NETWORK 82X4 (1005)	
RB128	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB129	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB130	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB131	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB132	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB133	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB134	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB135	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB136	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB137	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB138	1-234-371-21	RES, NETWORK 47 (1005X4)	
		< VARIABLE RESISTOR >	
RV301	1-223-583-41	RES, ADJ, CARBON (3 TYPE) 1K	
RV302	1-223-583-41	RES, ADJ, CARBON (3 TYPE) 1K	
		< SWITCH >	
S401	1-771-337-21	SWITCH, SLIDE	
		< VARISTOR >	
VDR201	1-805-774-11	VARISTOR, CHIP	
VDR202	1-805-774-11	VARISTOR, CHIP	
VDR203	1-805-774-11	VARISTOR, CHIP	
VDR204	1-805-774-11	VARISTOR, CHIP	
VDR205	1-805-774-11	VARISTOR, CHIP	
VDR206	1-805-774-11	VARISTOR, CHIP	
VDR207	1-805-774-11	VARISTOR, CHIP	
VDR208	1-805-774-11	VARISTOR, CHIP	
VDR209	1-805-774-11	VARISTOR, CHIP	
VDR210	1-805-774-11	VARISTOR, CHIP	
		< VIBRATOR >	
X401	1-813-430-11	PIEZOELECTRIC OSCILLATOR (8MHz)	
*	A-1129-277-A	RD-058 (AS)S COMPL	
		**********	
		< CAPACITOR >	

C104	1-126-208-21	ELECT CHIP	47uF	20%	4V
C107	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C110	1-126-208-21	ELECT CHIP	47uF	20%	4V
C112	1-124-779-00	ELECT CHIP	10uF	20%	16V
C113	1-124-779-00	ELECT CHIP	10uF	20%	16V
C114	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C115	1-164-848-11	CERAMIC CHIP	8PF	0.5PF	50V
C116	1-164-848-11	CERAMIC CHIP	8PF	0.5PF	50V
C117	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C118	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C119	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C120	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C121	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C122	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C123	1-124-779-00	ELECT CHIP	10uF	20%	16V

RD-058

Ref. No.	Part No.	Description			Remarks
C124	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C126	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C127	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C128	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C129	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C130	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C131	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C132	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C133	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C134	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C135	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C136	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C137	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C138	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C139	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C140	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C141	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C142	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C143	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C144	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C202	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C203	1-126-208-21	ELECT CHIP	47uF	20%	4V
C204	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C205	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C206	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C207	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C208	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C209	1-124-779-00	ELECT CHIP	10uF	20%	16V
C302	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C303	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C304	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C305	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C306	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C307	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C308	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C309	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C310	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C311	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C312	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C313	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C314	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C317	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C318	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C319	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C320	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C321	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C322	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C323	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C324	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C325	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C326	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C327	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C328	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C329	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C330	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C331	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C332	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C333	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C334	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C335	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C336	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C337	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C338	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C339	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C340	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C342	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C343	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C344	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C345	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C401	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C402	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C403	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C508	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C509	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C511	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C512	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C513	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C514	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C515	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C516	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C517	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C602	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C603	1-124-779-00	ELECT CHIP	10uF	20%	16V
C604	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C605	1-124-779-00	ELECT CHIP	10uF	20%	16V
C606	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C607	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C608	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C609	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C610	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C611	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C612	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C613	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C614	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C615	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C616	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C617	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C618	1-126-208-21	ELECT CHIP	47uF	20%	4V
C619	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C620	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C621	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C626	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C627	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C628	1-124-779-00	ELECT CHIP	10uF	20%	16V
C629	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C630	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C631	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C632	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C633	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C634	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C635	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C636	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C637	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C638	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C641	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C642	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C643	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C644	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C645	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C646	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

Ref. No.	Part No.	Description			Remarks
C655	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C656	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C657	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C658	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C660	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C704	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C705	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C706	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C707	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C708	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C709	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C710	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C711	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C712	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C713	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C714	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C715	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C716	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C717	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C718	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C719	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C720	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C721	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C722	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C723	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C724	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C725	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C726	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C727	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C808	1-126-208-21	ELECT CHIP	47uF	20%	4V
C809	1-126-208-21	ELECT CHIP	47uF	20%	4V
C810	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C811	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C814	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C815	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C816	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C817	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C818	1-218-990-81	SHORT CHIP	0		
C820	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C822	1-218-990-81	SHORT CHIP	0		
C824	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C829	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C830	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C831	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C832	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C833	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C834	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C835	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C836	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C837	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C838	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C839	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C840	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C841	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C842	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C843	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C844	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C845	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C846	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C847	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C849	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C850	1-126-208-21	ELECT CHIP	47uF	20%	4V
C852	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C853	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C901	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C902	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C903	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C904	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C905	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C906	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C907	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C908	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C909	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C910	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C911	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C912	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1001	1-124-779-00	ELECT CHIP	10uF	20%	16V
C1002	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1003	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1004	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1005	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1006	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1007	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C1008	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C1010	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1107	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C1108	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C1109	1-126-209-11	ELECT CHIP	100uF	20%	4V
C1201	1-126-208-21	ELECT CHIP	47uF	20%	4V
C1202	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1203	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C1204	1-126-208-21	ELECT CHIP	47uF	20%	4V
C1205	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1206	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1207	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1208	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1209	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1210	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1211	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1212	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1213	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1214	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1215	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1217	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1218	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1219	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1220	1-126-208-21	ELECT CHIP	47uF	20%	4V
C1221	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1222	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1223	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1224	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1226	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1227	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1229	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1230	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1231	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1232	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1233	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1234	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1235	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C1239	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C1240	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C1241	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C1242	1-126-208-21	ELECT CHIP	47uF	20%	4V
C1244	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1401	1-124-779-00	ELECT CHIP	10uF	20%	16V
C1402	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1403	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1404	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1405	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1406	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C1407	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1408	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1411	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C1412	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C1601	1-124-779-00	ELECT CHIP	10uF	20%	16V
C1602	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1603	1-124-779-00	ELECT CHIP	10uF	20%	16V
C1604	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1606	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1607	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1608	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1609	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1610	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1611	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1612	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1613	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1614	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1615	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1616	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1617	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1618	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1619	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1620	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1623	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1624	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1625	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1626	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1627	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1628	1-126-209-11	ELECT CHIP	100uF	20%	4V
C1629	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1630	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1631	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1632	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1633	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1638	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1701	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1702	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1703	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C1704	1-124-779-00	ELECT CHIP	10uF	20%	16V
C1705	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1901	1-124-779-00	ELECT CHIP	10uF	20%	16V
C1903	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1904	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1905	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1906	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1907	1-164-848-11	CERAMIC CHIP	8PF	0.5PF	50V
C1908	1-164-848-11	CERAMIC CHIP	8PF	0.5PF	50V
C1909	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1911	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1912	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1913	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1914	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1915	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C1916	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1917	1-164-388-91	CERAMIC CHIP	270PF	5%	50V
C2101	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2102	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2103	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2104	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2105	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2106	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2107	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2108	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2403	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2404	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2407	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2408	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR >			
CN101	1-764-177-11	PIN, CONNECTOR (SMD) (1.5MM) 7P			
CN602	1-818-857-51	CONNECTOR, FFC/FPC 40P			
CN603	1-818-857-51	CONNECTOR, FFC/FPC 40P			
CN1701	1-818-858-11	CONNECTOR, BOARD TO BOARD 42P			
CN1702	1-818-858-11	CONNECTOR, BOARD TO BOARD 42P			
CN1901	1-573-806-21	PIN, CONNECTOR (1.5MM) (SMD) 6P			
CN2101	1-818-857-51	CONNECTOR, FFC/FPC 40P			
CN2402	1-818-857-51	CONNECTOR, FFC/FPC 40P			
		< DIODE >			
D101	8-719-066-17	DIODE FTZ6.8E-T148			
D202	8-719-988-61	DIODE 1SS355TE-17			
D1201	8-719-988-61	DIODE 1SS355TE-17			
D1401	8-719-046-91	DIODE MA2S111			
D1401	8-719-056-23	DIODE MA2S111-(K8).SO			
D1402	8-719-083-15	DIODE 1SS389 (TPH3)			
D1601	8-719-027-95	DIODE HSM88WK-TL			
D1602	8-719-081-96	DIODE KV1870STL-G			
		< FERRITE BEAD >			
FB1701	1-469-083-21	INDUCTOR, FERRITE BEAD (1005)			
		< FLUORESCENT INDICATOR TUBE >			
FL101	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL103	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL201	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL301	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL302	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL501	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL601	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL602	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL603	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL802	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL803	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL804	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL805	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL806	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL1001	1-234-867-11	FILTER, EMI REMOVAL (SMD)			

Ref. No.	Part No.	Description	Remarks
FL1401	1-234-867-11	FILTER, EMI REMOVAL (SMD)	
FL1601	1-234-867-11	FILTER, EMI REMOVAL (SMD)	
FL1602	1-234-867-11	FILTER, EMI REMOVAL (SMD)	
FL1902	1-234-867-11	FILTER, EMI REMOVAL (SMD)	
FL2101	1-234-867-11	FILTER, EMI REMOVAL (SMD)	
FL2102	1-234-867-11	FILTER, EMI REMOVAL (SMD)	
FL2103	1-234-867-11	FILTER, EMI REMOVAL (SMD)	
FL2104	1-234-867-11	FILTER, EMI REMOVAL (SMD)	
		< IC >	
IC101	6-704-573-01	IC M24C32-WMN6T (B)	
IC104	6-707-917-01	IC HD6417306BL200AV	
IC105	8-759-573-97	IC SN74LVC541APWR	
IC106	8-759-680-48	IC TC7WH157FK (TE85R)	
IC107	8-759-679-58	IC SN74AHCT541PWR	
IC108	6-705-755-01	IC K4S561632E-UC75T	
IC108	6-706-007-01	IC HY57V561620CTP-HDR	
IC108	6-708-508-01	IC EDS2516ADTA-75-E	
IC109	6-705-755-01	IC K4S561632E-UC75T	
IC109	6-706-007-01	IC HY57V561620CTP-HDR	
IC109	6-708-508-01	IC EDS2516ADTA-75-E	
IC110	6-703-875-01	IC CDCVF2505PWR	
IC201	6-705-297-01	IC MBM29Z0003PCN-KE1	
IC202	6-705-297-01	IC MBM29Z0003PCN-KE1	
IC301	6-701-025-01	IC SN74LVC16244ADGGR	
IC302	8-759-392-81	IC SN74LVC16245ADGGR	
IC303	6-701-025-01	IC SN74LVC16244ADGGR	
IC304	8-759-392-81	IC SN74LVC16245ADGGR	
IC305	6-701-025-01	IC SN74LVC16244ADGGR	
IC306	6-701-025-01	IC SN74LVC16244ADGGR	
IC307	8-759-392-81	IC SN74LVC16245ADGGR	
IC308	6-701-025-01	IC SN74LVC16244ADGGR	
IC309	6-701-025-01	IC SN74LVC16244ADGGR	
IC310	8-759-392-81	IC SN74LVC16245ADGGR	
IC401	8-759-680-48	IC TC7WH157FK (TE85R)	
IC402	6-705-336-01	IC K9F2808U0C-PCB0T	
IC501	6-706-603-01	IC CXD9830Q	
IC601	8-753-208-36	IC CXD4702GB	
IC606	8-759-679-55	IC SN74LVC08APWR	
IC701	6-706-691-01	IC EM6A9320BI-5MGD	
IC701	6-706-784-01	IC HY5DU283222AFP-36	
IC701	6-708-783-01	IC EDD1232AABH-7A-E	
IC702	6-705-764-01	IC K4H511638B-UCB0T	
IC702	6-708-305-01	IC K4H511638C-UCB3T	
IC702	6-707-410-01	IC HY5DU121622BTP-JDR	
IC802	8-753-217-76	IC CXD4705GB	
IC901	6-706-691-01	IC EM6A9320BI-5MGD	
IC901	6-706-784-01	IC HY5DU283222AFP-36	
IC901	6-708-783-01	IC EDD1232AABH-7A-E	
IC1001	6-706-693-01	IC BU2357FV-E2	
IC1003	6-704-351-01	IC SN74LVC2G08DCUR	
IC1102	6-706-741-01	IC BA00HC5FP-E2	
IC1201	6-704-531-01	IC MM1591JFBEG	
IC1202	8-753-217-41	IC CXD3805R	
IC1401	6-703-644-01	IC AD1895AYRSZRL	
IC1402	6-705-515-01	IC AK4385VT-E2	
IC1403	8-759-546-74	IC TC7WH157FU (TE12R)	
IC1601	6-707-201-01	IC uPD72893BF1-FN3-A	
IC1602	6-705-992-11	IC HY57V161610ETP-7DR	
* IC1604	6-703-108-01	IC SN74LVC2G04DCKR	
IC1605	8-759-083-94	IC TC7W74FU	
IC1606	6-701-877-01	IC SM8707EV-G-E2	
IC1607	6-702-302-01	IC TK11133CSCL-G	
IC1901	6-706-365-01	IC uPD72852AGB-8EU-A	
IC2401	8-759-392-81	IC SN74LVC16245ADGGR	
		< COIL >	
L1101	1-424-918-21	INDUCTOR 10uH	
L1201	1-412-951-11	INDUCTOR 10uH	
L1601	1-410-371-41	INDUCTOR 1.5uH	
L1701	1-412-951-11	INDUCTOR 10uH	
		< LINE FILTER >	
LF1901	1-469-972-21	COIL,CHOKE	
		< TRANSISTOR >	
Q1201	8-729-010-05	TRANSISTOR MSB709-RT1	
Q1601	1-801-806-11	TR DTC144EKA	
Q1701	8-729-010-05	TRANSISTOR MSB709-RT1	
		< RESISTOR >	
R102	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R103	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R104	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R107	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R112	1-218-941-81	RES-CHIP 100 5% 1/16W	
R113	1-218-941-81	RES-CHIP 100 5% 1/16W	
R114	1-218-941-81	RES-CHIP 100 5% 1/16W	
R117	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R120	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R131	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R145	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R146	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R147	1-218-961-11	RES-CHIP 4.7K 5% 1/16W	
R148	1-218-961-11	RES-CHIP 4.7K 5% 1/16W	
R152	1-400-392-21	INDUCTOR, FERRITE BEAD (1608)	
R154	1-218-990-81	SHORT CHIP 0	
R156	1-218-961-11	RES-CHIP 4.7K 5% 1/16W	
R157	1-218-961-11	RES-CHIP 4.7K 5% 1/16W	
R158	1-218-990-81	SHORT CHIP 0	
R159	1-218-961-11	RES-CHIP 4.7K 5% 1/16W	
R161	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R162	1-218-957-11	RES-CHIP 2.2K 5% 1/16W	
R163	1-218-938-11	RES-CHIP 56 5% 1/16W	
R164	1-218-929-11	RES-CHIP 10 5% 1/16W	
R165	1-218-929-11	RES-CHIP 10 5% 1/16W	
R166	1-218-957-11	RES-CHIP 2.2K 5% 1/16W	
R167	1-218-938-11	RES-CHIP 56 5% 1/16W	
R168	1-218-938-11	RES-CHIP 56 5% 1/16W	
R170	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R172	1-218-941-81	RES-CHIP 100 5% 1/16W	
R173	1-218-938-11	RES-CHIP 56 5% 1/16W	
R175	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R176	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R177	1-218-949-11	RES-CHIP 470 5% 1/16W	
R178	1-218-957-11	RES-CHIP 2.2K 5% 1/16W	
R182	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R183	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R184	1-218-929-11	RES-CHIP 10 5% 1/16W	
R185	1-218-965-11	RES-CHIP 10K 5% 1/16W	
R187	1-218-965-11	RES-CHIP 10K 5% 1/16W	

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Ref. No.	Part No.	Description			Remarks
R188	1-218-953-11	RES-CHIP	1K	5%	1/16W
R190	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R191	1-218-938-11	RES-CHIP	56	5%	1/16W
R192	1-218-937-11	RES-CHIP	47	5%	1/16W
R193	1-218-965-11	RES-CHIP	10K	5%	1/16W
R194	1-218-965-11	RES-CHIP	10K	5%	1/16W
R195	1-218-965-11	RES-CHIP	10K	5%	1/16W
R196	1-218-965-11	RES-CHIP	10K	5%	1/16W
R197	1-218-965-11	RES-CHIP	10K	5%	1/16W
R198	1-218-965-11	RES-CHIP	10K	5%	1/16W
R199	1-218-938-11	RES-CHIP	56	5%	1/16W
R232	1-218-965-11	RES-CHIP	10K	5%	1/16W
R302	1-218-990-81	SHORT CHIP	0		
R304	1-218-938-11	RES-CHIP	56	5%	1/16W
R306	1-218-935-11	RES-CHIP	33	5%	1/16W
R307	1-218-938-11	RES-CHIP	56	5%	1/16W
R308	1-218-939-11	RES-CHIP	68	5%	1/16W
R309	1-218-939-11	RES-CHIP	68	5%	1/16W
R311	1-218-941-81	RES-CHIP	100	5%	1/16W
R312	1-218-937-11	RES-CHIP	47	5%	1/16W
R313	1-218-941-81	RES-CHIP	100	5%	1/16W
R314	1-218-937-11	RES-CHIP	47	5%	1/16W
R315	1-218-941-81	RES-CHIP	100	5%	1/16W
R316	1-218-937-11	RES-CHIP	47	5%	1/16W
R317	1-218-940-11	RES-CHIP	82	5%	1/16W
R318	1-218-937-11	RES-CHIP	47	5%	1/16W
R319	1-218-940-11	RES-CHIP	82	5%	1/16W
R320	1-218-935-11	RES-CHIP	33	5%	1/16W
R322	1-218-933-11	RES-CHIP	22	5%	1/16W
R323	1-218-935-11	RES-CHIP	33	5%	1/16W
R324	1-218-940-11	RES-CHIP	82	5%	1/16W
R325	1-218-935-11	RES-CHIP	33	5%	1/16W
R326	1-218-938-11	RES-CHIP	56	5%	1/16W
R327	1-218-938-11	RES-CHIP	56	5%	1/16W
R328	1-218-938-11	RES-CHIP	56	5%	1/16W
R330	1-218-965-11	RES-CHIP	10K	5%	1/16W
R337	1-218-965-11	RES-CHIP	10K	5%	1/16W
R339	1-218-965-11	RES-CHIP	10K	5%	1/16W
R340	1-218-940-11	RES-CHIP	82	5%	1/16W
R341	1-218-935-11	RES-CHIP	33	5%	1/16W
R347	1-218-938-11	RES-CHIP	56	5%	1/16W
R348	1-218-938-11	RES-CHIP	56	5%	1/16W
R353	1-218-937-11	RES-CHIP	47	5%	1/16W
R354	1-218-938-11	RES-CHIP	56	5%	1/16W
R355	1-218-938-11	RES-CHIP	56	5%	1/16W
R356	1-218-938-11	RES-CHIP	56	5%	1/16W
R359	1-218-990-81	SHORT CHIP	0		
R361	1-218-929-11	RES-CHIP	10	5%	1/16W
R362	1-218-935-11	RES-CHIP	33	5%	1/16W
R363	1-218-935-11	RES-CHIP	33	5%	1/16W
R364	1-218-937-11	RES-CHIP	47	5%	1/16W
R365	1-218-935-11	RES-CHIP	33	5%	1/16W
R366	1-218-935-11	RES-CHIP	33	5%	1/16W
R367	1-218-937-11	RES-CHIP	47	5%	1/16W
R369	1-218-933-11	RES-CHIP	22	5%	1/16W
R370	1-218-939-11	RES-CHIP	68	5%	1/16W
R371	1-218-937-11	RES-CHIP	47	5%	1/16W
R372	1-218-937-11	RES-CHIP	47	5%	1/16W
R374	1-218-939-11	RES-CHIP	68	5%	1/16W
R375	1-218-937-11	RES-CHIP	47	5%	1/16W
R377	1-218-965-11	RES-CHIP	10K	5%	1/16W
R379	1-218-990-81	SHORT CHIP	0		
R382	1-218-938-11	RES-CHIP	56	5%	1/16W
R383	1-218-935-11	RES-CHIP	33	5%	1/16W
R384	1-218-938-11	RES-CHIP	56	5%	1/16W
R385	1-218-935-11	RES-CHIP	33	5%	1/16W
R386	1-218-937-11	RES-CHIP	47	5%	1/16W
R387	1-218-935-11	RES-CHIP	33	5%	1/16W
R388	1-218-965-11	RES-CHIP	10K	5%	1/16W
R389	1-218-965-11	RES-CHIP	10K	5%	1/16W
R390	1-218-965-11	RES-CHIP	10K	5%	1/16W
R402	1-218-965-11	RES-CHIP	10K	5%	1/16W
R404	1-218-953-11	RES-CHIP	1K	5%	1/16W
R407	1-218-965-11	RES-CHIP	10K	5%	1/16W
R509	1-218-965-11	RES-CHIP	10K	5%	1/16W
R513	1-218-977-11	RES-CHIP	100K	5%	1/16W
R515	1-218-965-11	RES-CHIP	10K	5%	1/16W
R516	1-218-965-11	RES-CHIP	10K	5%	1/16W
R524	1-218-965-11	RES-CHIP	10K	5%	1/16W
R525	1-218-965-11	RES-CHIP	10K	5%	1/16W
R532	1-218-965-11	RES-CHIP	10K	5%	1/16W
R536	1-218-965-11	RES-CHIP	10K	5%	1/16W
R537	1-218-965-11	RES-CHIP	10K	5%	1/16W
R538	1-218-929-11	RES-CHIP	10	5%	1/16W
R541	1-218-965-11	RES-CHIP	10K	5%	1/16W
R571	1-218-965-11	RES-CHIP	10K	5%	1/16W
R576	1-218-965-11	RES-CHIP	10K	5%	1/16W
R584	1-218-965-11	RES-CHIP	10K	5%	1/16W
R585	1-218-965-11	RES-CHIP	10K	5%	1/16W
R598	1-218-990-81	SHORT CHIP	0		
R599	1-218-935-11	RES-CHIP	33	5%	1/16W
R603	1-218-935-11	RES-CHIP	33	5%	1/16W
R604	1-218-935-11	RES-CHIP	33	5%	1/16W
R605	1-218-935-11	RES-CHIP	33	5%	1/16W
R606	1-218-935-11	RES-CHIP	33	5%	1/16W
R607	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R608	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R609	1-218-933-11	RES-CHIP	22	5%	1/16W
R610	1-218-933-11	RES-CHIP	22	5%	1/16W
R611	1-218-933-11	RES-CHIP	22	5%	1/16W
R612	1-218-933-11	RES-CHIP	22	5%	1/16W
R613	1-218-933-11	RES-CHIP	22	5%	1/16W
R614	1-218-933-11	RES-CHIP	22	5%	1/16W
R615	1-218-990-81	SHORT CHIP	0		
R616	1-218-939-11	RES-CHIP	68	5%	1/16W
R618	1-218-938-11	RES-CHIP	56	5%	1/16W
R619	1-218-938-11	RES-CHIP	56	5%	1/16W
R620	1-218-933-11	RES-CHIP	22	5%	1/16W
R621	1-218-933-11	RES-CHIP	22	5%	1/16W
R622	1-218-933-11	RES-CHIP	22	5%	1/16W
R623	1-218-933-11	RES-CHIP	22	5%	1/16W
R624	1-218-933-11	RES-CHIP	22	5%	1/16W
R625	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R626	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R627	1-218-938-11	RES-CHIP	56	5%	1/16W
R631	1-218-990-81	SHORT CHIP	0		
R632	1-218-937-11	RES-CHIP	47	5%	1/16W
R635	1-218-990-81	SHORT CHIP	0		
R637	1-218-990-81	SHORT CHIP	0		
R647	1-218-990-81	SHORT CHIP	0		

Ref. No.	Part No.	Description			Remarks
R654	1-218-965-11	RES-CHIP	10K	5%	1/16W
R660	1-218-933-11	RES-CHIP	22	5%	1/16W
R661	1-218-933-11	RES-CHIP	22	5%	1/16W
R662	1-218-933-11	RES-CHIP	22	5%	1/16W
R666	1-218-990-81	SHORT CHIP	0		
R667	1-218-990-81	SHORT CHIP	0		
R668	1-218-990-81	SHORT CHIP	0		
R669	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R671	1-218-990-81	SHORT CHIP	0		
R672	1-218-990-81	SHORT CHIP	0		
R674	1-218-990-81	SHORT CHIP	0		
R675	1-218-933-11	RES-CHIP	22	5%	1/16W
R676	1-218-933-11	RES-CHIP	22	5%	1/16W
R677	1-218-933-11	RES-CHIP	22	5%	1/16W
R678	1-218-933-11	RES-CHIP	22	5%	1/16W
R679	1-218-933-11	RES-CHIP	22	5%	1/16W
R680	1-218-933-11	RES-CHIP	22	5%	1/16W
R681	1-218-933-11	RES-CHIP	22	5%	1/16W
R682	1-218-933-11	RES-CHIP	22	5%	1/16W
R683	1-218-933-11	RES-CHIP	22	5%	1/16W
R684	1-218-933-11	RES-CHIP	22	5%	1/16W
R685	1-218-933-11	RES-CHIP	22	5%	1/16W
R686	1-218-933-11	RES-CHIP	22	5%	1/16W
R687	1-218-933-11	RES-CHIP	22	5%	1/16W
R688	1-218-937-11	RES-CHIP	47	5%	1/16W
R689	1-218-937-11	RES-CHIP	47	5%	1/16W
R690	1-218-937-11	RES-CHIP	47	5%	1/16W
R691	1-218-937-11	RES-CHIP	47	5%	1/16W
R692	1-218-990-81	SHORT CHIP	0		
R702	1-218-990-81	SHORT CHIP	0		
R703	1-218-990-81	SHORT CHIP	0		
R704	1-218-935-11	RES-CHIP	33	5%	1/16W
R705	1-218-935-11	RES-CHIP	33	5%	1/16W
R706	1-218-935-11	RES-CHIP	33	5%	1/16W
R707	1-218-935-11	RES-CHIP	33	5%	1/16W
R708	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R709	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R710	1-218-935-11	RES-CHIP	33	5%	1/16W
R711	1-218-990-81	SHORT CHIP	0		
R712	1-218-990-81	SHORT CHIP	0		
R713	1-218-935-11	RES-CHIP	33	5%	1/16W
R827	1-218-937-11	RES-CHIP	47	5%	1/16W
R829	1-218-965-11	RES-CHIP	10K	5%	1/16W
R832	1-218-990-81	SHORT CHIP	0		
R836	1-218-965-11	RES-CHIP	10K	5%	1/16W
R843	1-218-965-11	RES-CHIP	10K	5%	1/16W
R846	1-218-965-11	RES-CHIP	10K	5%	1/16W
R851	1-218-990-81	SHORT CHIP	0		
R852	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R853	1-218-965-11	RES-CHIP	10K	5%	1/16W
R856	1-218-990-81	SHORT CHIP	0		
R861	1-218-965-11	RES-CHIP	10K	5%	1/16W
R864	1-218-965-11	RES-CHIP	10K	5%	1/16W
R872	1-218-938-11	RES-CHIP	56	5%	1/16W
R874	1-218-938-11	RES-CHIP	56	5%	1/16W
R876	1-218-938-11	RES-CHIP	56	5%	1/16W
R880	1-218-933-11	RES-CHIP	22	5%	1/16W
R881	1-218-965-11	RES-CHIP	10K	5%	1/16W
R901	1-218-933-11	RES-CHIP	22	5%	1/16W
R902	1-218-933-11	RES-CHIP	22	5%	1/16W
R903	1-218-929-11	RES-CHIP	10	5%	1/16W
R904	1-218-929-11	RES-CHIP	10	5%	1/16W
R906	1-218-990-81	SHORT CHIP	0		
R907	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R908	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R909	1-218-990-81	SHORT CHIP	0		
R1003	1-218-939-11	RES-CHIP	68	5%	1/16W
R1004	1-218-939-11	RES-CHIP	68	5%	1/16W
R1005	1-218-939-11	RES-CHIP	68	5%	1/16W
R1006	1-218-935-11	RES-CHIP	33	5%	1/16W
R1011	1-218-951-11	RES-CHIP	680	5%	1/16W
R1015	1-218-947-11	RES-CHIP	330	5%	1/16W
R1016	1-218-939-11	RES-CHIP	68	5%	1/16W
R1017	1-218-939-11	RES-CHIP	68	5%	1/16W
R1018	1-218-939-11	RES-CHIP	68	5%	1/16W
R1019	1-218-939-11	RES-CHIP	68	5%	1/16W
R1022	1-218-990-81	SHORT CHIP	0		
R1023	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R1025	1-218-938-11	RES-CHIP	56	5%	1/16W
R1029	1-218-990-81	SHORT CHIP	0		
R1105	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1106	1-218-878-11	METAL CHIP	20K	0.5%	1/10W
R1108	1-216-295-91	SHORT CHIP	0		
R1119	1-216-864-11	SHORT CHIP	0		
R1124	1-216-295-91	SHORT CHIP	0		
R1125	1-216-296-11	SHORT CHIP	0		
R1201	1-216-864-11	SHORT CHIP	0		
R1203	1-218-990-81	SHORT CHIP	0		
R1207	1-218-990-81	SHORT CHIP	0		
R1208	1-218-990-81	SHORT CHIP	0		
R1209	1-218-933-11	RES-CHIP	22	5%	1/16W
R1210	1-218-933-11	RES-CHIP	22	5%	1/16W
R1211	1-218-933-11	RES-CHIP	22	5%	1/16W
R1212	1-218-990-81	SHORT CHIP	0		
R1216	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1221	1-218-990-81	SHORT CHIP	0		
R1223	1-218-990-81	SHORT CHIP	0		
R1233	1-218-945-11	RES-CHIP	220	5%	1/16W
R1234	1-218-990-81	SHORT CHIP	0		
R1235	1-218-990-81	SHORT CHIP	0		
R1236	1-218-990-81	SHORT CHIP	0		
R1240	1-218-949-11	RES-CHIP	470	5%	1/16W
R1241	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R1243	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1248	1-218-990-81	SHORT CHIP	0		
R1249	1-218-990-81	SHORT CHIP	0		
R1250	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1402	1-218-990-81	SHORT CHIP	0		
R1408	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1409	1-218-990-81	SHORT CHIP	0		
R1410	1-218-990-81	SHORT CHIP	0		
R1411	1-218-990-81	SHORT CHIP	0		
R1412	1-218-990-81	SHORT CHIP	0		
R1413	1-218-990-81	SHORT CHIP	0		
R1414	1-218-941-81	RES-CHIP	100	5%	1/16W
R1415	1-218-933-11	RES-CHIP	22	5%	1/16W
R1416	1-218-941-81	RES-CHIP	100	5%	1/16W
R1417	1-218-941-81	RES-CHIP	100	5%	1/16W
R1419	1-218-941-81	RES-CHIP	100	5%	1/16W
R1420	1-218-990-81	SHORT CHIP	0		

Ref. No.	Part No.	Description			Remarks
R1421	1-218-990-81	SHORT CHIP	0		
R1422	1-218-990-81	SHORT CHIP	0		
R1424	1-216-864-11	SHORT CHIP	0		
R1450	1-218-990-81	SHORT CHIP	0		
R1451	1-218-990-81	SHORT CHIP	0		
R1452	1-218-990-81	SHORT CHIP	0		
R1602	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1603	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1604	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1605	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1607	1-218-990-81	SHORT CHIP	0		
R1608	1-218-935-11	RES-CHIP	33	5%	1/16W
R1609	1-218-941-81	RES-CHIP	100	5%	1/16W
R1610	1-218-990-81	SHORT CHIP	0		
R1611	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1612	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1613	1-218-935-11	RES-CHIP	33	5%	1/16W
R1614	1-218-935-11	RES-CHIP	33	5%	1/16W
R1615	1-218-935-11	RES-CHIP	33	5%	1/16W
R1616	1-218-935-11	RES-CHIP	33	5%	1/16W
R1617	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1618	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1619	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1620	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1624	1-218-935-11	RES-CHIP	33	5%	1/16W
R1625	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1626	1-218-935-11	RES-CHIP	33	5%	1/16W
R1627	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1628	1-218-935-11	RES-CHIP	33	5%	1/16W
R1629	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1630	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1631	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R1634	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1635	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1636	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1638	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R1639	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R1640	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R1641	1-218-990-81	SHORT CHIP	0		
R1642	1-218-982-11	RES-CHIP	270K	5%	1/16W
R1646	1-218-990-81	SHORT CHIP	0		
R1647	1-218-990-81	SHORT CHIP	0		
R1648	1-218-990-81	SHORT CHIP	0		
R1649	1-218-990-81	SHORT CHIP	0		
R1654	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1655	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1656	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1657	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1658	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1659	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1660	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1661	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1662	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1663	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1664	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1665	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1669	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1670	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1672	1-218-990-81	SHORT CHIP	0		
R1673	1-218-990-81	SHORT CHIP	0		

Ref. No.	Part No.	Description			Remarks
R1674	1-218-990-81	SHORT CHIP	0		
R1676	1-400-392-21	INDUCTOR, FERRITE BEAD (1608)			
R1677	1-218-990-81	SHORT CHIP	0		
R1679	1-218-935-11	RES-CHIP	33	5%	1/16W
R1680	1-218-929-11	RES-CHIP	10	5%	1/16W
R1681	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R1682	1-218-937-11	RES-CHIP	47	5%	1/16W
R1683	1-218-937-11	RES-CHIP	47	5%	1/16W
R1684	1-218-937-11	RES-CHIP	47	5%	1/16W
R1685	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1686	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1688	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1689	1-218-990-81	SHORT CHIP	0		
R1690	1-218-990-81	SHORT CHIP	0		
R1701	1-218-935-11	RES-CHIP	33	5%	1/16W
R1702	1-218-935-11	RES-CHIP	33	5%	1/16W
R1703	1-218-935-11	RES-CHIP	33	5%	1/16W
R1714	1-218-990-81	SHORT CHIP	0		
R1723	1-216-295-91	SHORT CHIP	0		
R1725	1-216-295-91	SHORT CHIP	0		
R1746	1-216-864-11	SHORT CHIP	0		
R1747	1-216-864-11	SHORT CHIP	0		
R1748	1-218-990-81	SHORT CHIP	0		
R1749	1-218-949-11	RES-CHIP	470	5%	1/16W
R1750	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R1751	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R1754	1-218-990-81	SHORT CHIP	0		
R1810	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R1820	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R1829	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1843	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1845	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1901	1-400-392-21	INDUCTOR, FERRITE BEAD (1608)			
R1904	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1905	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1907	1-218-941-81	RES-CHIP	100	5%	1/16W
R1908	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1909	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1910	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1911	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1912	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1913	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1915	1-208-910-11	METAL CHIP	9.1K	0.5%	1/16W
R1916	1-218-938-11	RES-CHIP	56	5%	1/16W
R1917	1-218-938-11	RES-CHIP	56	5%	1/16W
R1919	1-218-938-11	RES-CHIP	56	5%	1/16W
R1920	1-218-938-11	RES-CHIP	56	5%	1/16W
R1921	1-218-864-11	METAL CHIP	5.1K	0.5%	1/10W
R2106	1-218-935-11	RES-CHIP	33	5%	1/16W
R2107	1-218-990-81	SHORT CHIP	0		
R2108	1-218-990-81	SHORT CHIP	0		
R2111	1-218-929-11	RES-CHIP	10	5%	1/16W
R2112	1-218-990-81	SHORT CHIP	0		
R2119	1-218-990-81	SHORT CHIP	0		
R2120	1-218-990-81	SHORT CHIP	0		
R2122	1-218-990-81	SHORT CHIP	0		
R2124	1-218-990-81	SHORT CHIP	0		
R2125	1-218-990-81	SHORT CHIP	0		
R2126	1-218-990-81	SHORT CHIP	0		
R2127	1-218-990-81	SHORT CHIP	0		

Ref. No.	Part No.	Description			Remarks
R2311	1-218-990-81	SHORT CHIP	0		
R2414	1-218-990-81	SHORT CHIP	0		
R2415	1-218-990-81	SHORT CHIP	0		
R2416	1-218-990-81	SHORT CHIP	0		
R2417	1-218-990-81	SHORT CHIP	0		
R2418	1-218-990-81	SHORT CHIP	0		
R2419	1-218-990-81	SHORT CHIP	0		
R2420	1-218-990-81	SHORT CHIP	0		
R2421	1-218-990-81	SHORT CHIP	0		
R2422	1-218-990-81	SHORT CHIP	0		
R2423	1-218-990-81	SHORT CHIP	0		
R2424	1-218-990-81	SHORT CHIP	0		
R2425	1-218-990-81	SHORT CHIP	0		
R2426	1-218-990-81	SHORT CHIP	0		
R2427	1-218-990-81	SHORT CHIP	0		
R2428	1-218-990-81	SHORT CHIP	0		
R2429	1-218-990-81	SHORT CHIP	0		
R2442	1-218-990-81	SHORT CHIP	0		
R2443	1-218-990-81	SHORT CHIP	0		
R3006	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3011	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3014	1-218-939-11	RES-CHIP	68	5%	1/16W
R3015	1-218-937-11	RES-CHIP	47	5%	1/16W
R3017	1-218-938-11	RES-CHIP	56	5%	1/16W
R3018	1-218-938-11	RES-CHIP	56	5%	1/16W
R3019	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3021	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3022	1-218-938-11	RES-CHIP	56	5%	1/16W
R3023	1-218-938-11	RES-CHIP	56	5%	1/16W
R3024	1-218-938-11	RES-CHIP	56	5%	1/16W
R3025	1-218-937-11	RES-CHIP	47	5%	1/16W
R3027	1-218-937-11	RES-CHIP	47	5%	1/16W
R3029	1-218-941-81	RES-CHIP	100	5%	1/16W
R3030	1-218-938-11	RES-CHIP	56	5%	1/16W
R3035	1-218-937-11	RES-CHIP	47	5%	1/16W
R3040	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3044	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3045	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3048	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3052	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3053	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3055	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3056	1-218-938-11	RES-CHIP	56	5%	1/16W
R3057	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3058	1-218-937-11	RES-CHIP	47	5%	1/16W
R3059	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3061	1-218-938-11	RES-CHIP	56	5%	1/16W
R3063	1-218-938-11	RES-CHIP	56	5%	1/16W
R3064	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3065	1-218-937-11	RES-CHIP	47	5%	1/16W
R3066	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3068	1-218-938-11	RES-CHIP	56	5%	1/16W
R3070	1-218-938-11	RES-CHIP	56	5%	1/16W
R3071	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3074	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3075	1-218-939-11	RES-CHIP	68	5%	1/16W
R3076	1-218-937-11	RES-CHIP	47	5%	1/16W
R3077	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3078	1-218-938-11	RES-CHIP	56	5%	1/16W
R3079	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3080	1-218-937-11	RES-CHIP	47	5%	1/16W
R3081	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3082	1-218-938-11	RES-CHIP	56	5%	1/16W
R3083	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3084	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3088	1-218-939-11	RES-CHIP	68	5%	1/16W
R3089	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3092	1-218-937-11	RES-CHIP	47	5%	1/16W
R3093	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3094	1-218-938-11	RES-CHIP	56	5%	1/16W
R3095	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3096	1-218-937-11	RES-CHIP	47	5%	1/16W
R3097	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3098	1-218-937-11	RES-CHIP	47	5%	1/16W
R3099	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3100	1-218-938-11	RES-CHIP	56	5%	1/16W
R3101	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3102	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3106	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3107	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3108	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3109	1-218-938-11	RES-CHIP	56	5%	1/16W
R3110	1-218-938-11	RES-CHIP	56	5%	1/16W
R3111	1-218-933-11	RES-CHIP	22	5%	1/16W
R3112	1-218-935-11	RES-CHIP	33	5%	1/16W
R3113	1-218-929-11	RES-CHIP	10	5%	1/16W
R3114	1-218-935-11	RES-CHIP	33	5%	1/16W
R3115	1-218-929-11	RES-CHIP	10	5%	1/16W
R3116	1-218-929-11	RES-CHIP	10	5%	1/16W
R3117	1-218-938-11	RES-CHIP	56	5%	1/16W
R3118	1-218-938-11	RES-CHIP	56	5%	1/16W
R3119	1-218-938-11	RES-CHIP	56	5%	1/16W
R3120	1-218-938-11	RES-CHIP	56	5%	1/16W
R3121	1-218-938-11	RES-CHIP	56	5%	1/16W
R3122	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3123	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3124	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3125	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3126	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3127	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3128	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3129	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3130	1-218-935-11	RES-CHIP	33	5%	1/16W
R3131	1-218-935-11	RES-CHIP	33	5%	1/16W
R3132	1-218-937-11	RES-CHIP	47	5%	1/16W
R3133	1-218-937-11	RES-CHIP	47	5%	1/16W
R3134	1-400-392-21	INDUCTOR, FERRITE BEAD (1608)			
R3141	1-218-935-11	RES-CHIP	33	5%	1/16W
R3142	1-218-935-11	RES-CHIP	33	5%	1/16W
R3143	1-218-939-11	RES-CHIP	68	5%	1/16W
R3144	1-218-939-11	RES-CHIP	68	5%	1/16W
R3145	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3146	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3147	1-218-990-81	SHORT CHIP	0		
R3148	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3150	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3151	1-218-935-11	RES-CHIP	33	5%	1/16W
R3152	1-218-935-11	RES-CHIP	33	5%	1/16W
R3153	1-218-935-11	RES-CHIP	33	5%	1/16W
R3154	1-218-965-11	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R3155	1-218-935-11	RES-CHIP	33	5%	1/16W
R3156	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3157	1-218-935-11	RES-CHIP	33	5%	1/16W
R3158	1-218-935-11	RES-CHIP	33	5%	1/16W
R3159	1-218-935-11	RES-CHIP	33	5%	1/16W
R3162	1-218-990-81	SHORT CHIP	0		
R3164	1-218-935-11	RES-CHIP	33	5%	1/16W
R3170	1-218-937-11	RES-CHIP	47	5%	1/16W
R3601	1-218-990-81	SHORT CHIP	0		
R3619	1-218-933-11	RES-CHIP	22	5%	1/16W
R3620	1-218-933-11	RES-CHIP	22	5%	1/16W
R3629	1-218-939-11	RES-CHIP	68	5%	1/16W
R3630	1-218-933-11	RES-CHIP	22	5%	1/16W
R3631	1-218-933-11	RES-CHIP	22	5%	1/16W
R3637	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3638	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3639	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3650	1-218-935-11	RES-CHIP	33	5%	1/16W
R3651	1-218-940-11	RES-CHIP	82	5%	1/16W
R3652	1-218-933-11	RES-CHIP	22	5%	1/16W
R3653	1-218-940-11	RES-CHIP	82	5%	1/16W
R3654	1-218-933-11	RES-CHIP	22	5%	1/16W
R3655	1-218-933-11	RES-CHIP	22	5%	1/16W
R3656	1-218-940-11	RES-CHIP	82	5%	1/16W
R3657	1-218-935-11	RES-CHIP	33	5%	1/16W
R3658	1-218-943-11	RES-CHIP	150	5%	1/16W
R3659	1-218-945-11	RES-CHIP	220	5%	1/16W
R3660	1-218-933-11	RES-CHIP	22	5%	1/16W
R3661	1-218-945-11	RES-CHIP	220	5%	1/16W
R3662	1-218-933-11	RES-CHIP	22	5%	1/16W
R3663	1-218-933-11	RES-CHIP	22	5%	1/16W
R3664	1-218-940-11	RES-CHIP	82	5%	1/16W
R3665	1-218-935-11	RES-CHIP	33	5%	1/16W
R3672	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3673	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3674	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3675	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R3676	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3677	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R3678	1-218-990-81	SHORT CHIP	0		
R3679	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3680	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3681	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3682	1-218-938-11	RES-CHIP	56	5%	1/16W
R3683	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3803	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3805	1-218-990-81	SHORT CHIP	0		
R3810	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R3811	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R3814	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3817	1-218-990-81	SHORT CHIP	0		
R3818	1-218-935-11	RES-CHIP	33	5%	1/16W
R3819	1-218-935-11	RES-CHIP	33	5%	1/16W
R3828	1-218-941-81	RES-CHIP	100	5%	1/16W
R3829	1-218-937-11	RES-CHIP	47	5%	1/16W
R3830	1-218-939-11	RES-CHIP	68	5%	1/16W
R3831	1-218-935-11	RES-CHIP	33	5%	1/16W
R3832	1-218-937-11	RES-CHIP	47	5%	1/16W
R3833	1-218-937-11	RES-CHIP	47	5%	1/16W
R3834	1-218-941-81	RES-CHIP	100	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R3835	1-218-941-81	RES-CHIP	100	5%	1/16W
R3836	1-218-990-81	SHORT CHIP	0		
R3837	1-218-941-81	RES-CHIP	100	5%	1/16W
R3838	1-218-941-81	RES-CHIP	100	5%	1/16W
R3839	1-218-941-81	RES-CHIP	100	5%	1/16W
R3840	1-218-941-81	RES-CHIP	100	5%	1/16W
R3841	1-218-941-81	RES-CHIP	100	5%	1/16W
R3842	1-218-941-81	RES-CHIP	100	5%	1/16W
R3843	1-218-941-81	RES-CHIP	100	5%	1/16W
R3845	1-218-939-11	RES-CHIP	68	5%	1/16W
R3846	1-218-937-11	RES-CHIP	47	5%	1/16W
R3847	1-218-935-11	RES-CHIP	33	5%	1/16W
R3848	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3849	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3850	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3851	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3853	1-218-990-81	SHORT CHIP	0		

< COMPOSITION CIRCUIT BLOCK >

RB101	1-234-378-21	RES, NETWORK	10K (1005X4)
RB102	1-234-372-21	RES, NETWORK	100 (1005X4)
RB103	1-234-372-21	RES, NETWORK	100 (1005X4)
RB104	1-234-378-21	RES, NETWORK	10K (1005X4)
RB105	1-242-963-21	RES, NETWORK	33 (1005X4)
RB106	1-234-714-11	RES, NETWORK	56 (1005X4)
RB107	1-234-371-21	RES, NETWORK	47 (1005X4)
RB108	1-234-371-21	RES, NETWORK	47 (1005X4)
RB109	1-234-377-21	RES, NETWORK	4.7K (1005X4)
RB110	1-234-377-21	RES, NETWORK	4.7K (1005X4)
RB111	1-234-371-21	RES, NETWORK	47 (1005X4)
RB112	1-234-371-21	RES, NETWORK	47 (1005X4)
RB113	1-242-963-21	RES, NETWORK	33 (1005X4)
RB114	1-242-963-21	RES, NETWORK	33 (1005X4)
RB115	1-242-963-21	RES, NETWORK	33 (1005X4)
RB116	1-242-963-21	RES, NETWORK	33 (1005X4)
RB117	1-234-371-21	RES, NETWORK	47 (1005X4)
RB118	1-234-371-21	RES, NETWORK	47 (1005X4)
RB119	1-234-371-21	RES, NETWORK	47 (1005X4)
RB120	1-234-371-21	RES, NETWORK	47 (1005X4)
RB121	1-234-377-21	RES, NETWORK	4.7K (1005X4)
RB122	1-234-377-21	RES, NETWORK	4.7K (1005X4)
RB123	1-234-377-21	RES, NETWORK	4.7K (1005X4)
RB124	1-234-377-21	RES, NETWORK	4.7K (1005X4)
RB125	1-234-377-21	RES, NETWORK	4.7K (1005X4)
RB126	1-234-377-21	RES, NETWORK	4.7K (1005X4)
RB301	1-234-378-21	RES, NETWORK	10K (1005X4)
RB302	1-234-378-21	RES, NETWORK	10K (1005X4)
RB303	1-234-378-21	RES, NETWORK	10K (1005X4)
RB304	1-234-378-21	RES, NETWORK	10K (1005X4)
RB305	1-234-702-11	RES, NETWORK	68 (1005X4)
RB306	1-234-702-11	RES, NETWORK	68 (1005X4)
RB307	1-234-714-11	RES, NETWORK	56 (1005X4)
RB308	1-234-714-11	RES, NETWORK	56 (1005X4)
RB309	1-234-378-21	RES, NETWORK	10K (1005X4)
RB310	1-234-378-21	RES, NETWORK	10K (1005X4)
RB311	1-234-714-11	RES, NETWORK	56 (1005X4)
RB312	1-234-702-11	RES, NETWORK	68 (1005X4)
RB313	1-234-714-11	RES, NETWORK	56 (1005X4)
RB315	1-234-378-21	RES, NETWORK	10K (1005X4)

Ref. No.	Part No.	Description	Remarks
RB316	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB317	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB318	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB319	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB320	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB321	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB322	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB323	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB324	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB325	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB326	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB327	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB329	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB330	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB331	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB332	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB333	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB334	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB335	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB336	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB337	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB338	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB339	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB340	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB341	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB342	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB343	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB344	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB345	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB346	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB347	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB348	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB349	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB350	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB351	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB401	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB402	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB601	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB602	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB603	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB604	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB605	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB606	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB607	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB608	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB609	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB610	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB611	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB612	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB613	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB614	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB615	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB616	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB617	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB618	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB619	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB620	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB621	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB622	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB623	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB624	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB625	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB626	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB627	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB628	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB629	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB630	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB631	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB632	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB633	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB636	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB637	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB654	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB655	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB656	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB657	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB658	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB659	1-234-791-21	RES, NETWORK 150X4 (2010)	
RB660	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB661	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB662	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB663	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB701	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB702	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB703	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB704	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB705	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB706	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB707	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB708	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB709	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB710	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB711	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB712	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB713	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB714	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB715	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB716	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB717	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB718	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB719	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB720	1-234-373-21	RES, NETWORK 220 (1005X4)	
RB806	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB807	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB808	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB809	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB810	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB811	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB812	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB813	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB814	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB815	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB817	1-234-372-21	RES, NETWORK 100 (1005X4)	
RB818	1-234-372-21	RES, NETWORK 100 (1005X4)	
RB819	1-234-372-21	RES, NETWORK 100 (1005X4)	
RB820	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB821	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB822	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB823	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB824	1-234-371-21	RES, NETWORK 47 (1005X4)	

Ref. No.	Part No.	Description	Remarks
RB825	1-234-371-21	RES, NETWORK 47 (1005X4)	
RB826	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB827	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB829	1-234-369-21	RES, NETWORK 10 (1005X4)	
RB830	1-234-369-21	RES, NETWORK 10 (1005X4)	
RB832	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB833	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB834	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB901	1-234-369-21	RES, NETWORK 10 (1005X4)	
RB902	1-234-369-21	RES, NETWORK 10 (1005X4)	
RB903	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB904	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB905	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB906	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB907	1-234-369-21	RES, NETWORK 10 (1005X4)	
RB908	1-234-369-21	RES, NETWORK 10 (1005X4)	
RB1201	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB1202	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB1203	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB1204	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB1205	1-234-370-21	RES, NETWORK 22 (1005X4)	
RB1601	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1603	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1605	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1606	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB1607	1-234-702-11	RES, NETWORK 68 (1005X4)	
RB1608	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1609	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1610	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1611	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1612	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1613	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1614	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1615	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB1616	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB1617	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB1618	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB1619	1-234-714-11	RES, NETWORK 56 (1005X4)	
RB1620	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB1621	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB2103	1-234-372-21	RES, NETWORK 100 (1005X4)	
RB2104	1-234-372-21	RES, NETWORK 100 (1005X4)	
RB2303	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB2304	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB2305	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB2306	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB2307	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB2308	1-234-400-21	CONDUCTOR, NETWORK (2010X4)	
RB2403	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB2404	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB2405	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB2406	1-242-963-21	RES, NETWORK 33 (1005X4)	
RB2407	1-242-962-21	RES, NETWORK 82X4 (1005)	
RB2408	1-242-962-21	RES, NETWORK 82X4 (1005)	
RB2409	1-242-962-21	RES, NETWORK 82X4 (1005)	
RB2410	1-242-962-21	RES, NETWORK 82X4 (1005)	
RB2411	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB2412	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB2413	1-234-378-21	RES, NETWORK 10K (1005X4)	
RB2414	1-234-378-21	RES, NETWORK 10K (1005X4)	

Ref. No.	Part No.	Description			Remarks
		< VIBRATOR >			
X102	1-795-885-21	VIBRATOR, CRYSTAL (SMD) (33MHz)			
X1001	1-781-867-21	VIBRATOR, CRYSTAL (27MHz)			
X1901	1-795-886-21	VIBRATOR, CRYSTAL (SMD) (24.576MHz)			
*	A-1129-163-A	UE-001 (AS) COMPL			
		**********			
		< CAPACITOR >			
C101	1-124-779-00	ELECT CHIP	10uF	20%	16V
C105	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C106	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C107	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C108	1-126-208-21	ELECT CHIP	47uF	20%	4V
C111	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C112	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C113	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C114	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C115	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C116	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C117	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C118	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C119	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C120	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C121	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C124	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C125	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C126	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C127	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C129	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C130	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C131	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C132	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C133	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C134	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C136	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C138	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C139	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C140	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C201	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C202	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C203	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C204	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C205	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C206	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C207	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C208	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C211	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C212	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C215	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C218	1-124-779-00	ELECT CHIP	10uF	20%	16V
C219	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C220	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C221	1-124-779-00	ELECT CHIP	10uF	20%	16V
C222	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C223	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C302	1-126-208-21	ELECT CHIP	47uF	20%	4V
C303	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C305	1-124-779-00	ELECT CHIP	10uF	20%	16V

Ref. No.	Part No.	Description			Remarks
C306	1-124-779-00	ELECT CHIP	10uF	20%	16V
C307	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C308	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C309	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C313	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C314	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C315	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C316	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C321	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C322	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C323	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C324	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C325	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C329	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C330	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C331	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C332	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C337	1-124-779-00	ELECT CHIP	10uF	20%	16V
C338	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C339	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C341	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C401	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C402	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C403	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C404	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C406	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C407	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C409	1-124-779-00	ELECT CHIP	10uF	20%	16V
C411	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C412	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C503	1-128-394-11	ELECT CHIP	220uF	20%	10V
C506	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C507	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C509	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C510	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C511	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C701	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C702	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C703	1-165-887-91	CERAMIC CHIP	0.22uF	10%	6.3V
C704	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	50V
C705	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	50V
C706	1-165-887-91	CERAMIC CHIP	0.22uF	10%	6.3V
C707	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C708	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C709	1-165-887-91	CERAMIC CHIP	0.22uF	10%	6.3V
C710	1-165-887-91	CERAMIC CHIP	0.22uF	10%	6.3V
C711	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C712	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C713	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C714	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C715	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C716	1-126-208-21	ELECT CHIP	47uF	20%	4V
C718	1-164-690-91	CERAMIC CHIP	0.0022uF	5%	50V
		< CONNECTOR >			
CN101	1-818-857-51	CONNECTOR, FFC/FPC 40P			
CN102	1-764-177-11	PIN, CONNECTOR (SMD) (1.5MM) 7P			
* CN104	1-569-775-21	PIN, CONNECTOR (SMD) 5P			
CN501	1-774-653-21	PIN, CONNECTOR (PC BOARD) 3P			
CN601	1-818-857-51	CONNECTOR, FFC/FPC 40P			
CN602	1-818-857-51	CONNECTOR, FFC/FPC 40P			
		< DIODE >			
D101	8-719-066-17	DIODE FTZ6.8E-T148			
D503	8-719-075-77	DIODE EC10DA40-TE12			
		< FERRITE BEAD >			
FB102	1-469-324-21	FERRITE, EMI (SMD) (2012)			
FB301	1-469-324-21	FERRITE, EMI (SMD) (2012)			
FB1194	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)			
FB1195	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)			
		< FLUORESCENT INDICATOR TUBE >			
FL101	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL202	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL203	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL302	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL303	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL304	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL306	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL307	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL701	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL702	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL703	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
FL704	1-234-867-11	FILTER, EMI REMOVAL (SMD)			
		< IC >			
IC101	6-703-754-01	IC PQ1L153M2SPQ			
IC104	6-708-515-01	IC HD6417606BGN100V			
IC106	6-703-875-01	IC CDCVF2505PWR			
IC108	6-707-512-01	IC K4S281632F-UC75T			
IC201	6-701-025-01	IC SN74LVC16244ADGGR			
IC202	6-701-025-01	IC SN74LVC16244ADGGR			
IC203	6-700-421-01	IC SN74LVCH16245ADGGR			
IC304	6-708-794-01	IC TL751A1-LF			
IC309	6-705-992-11	IC HY57V161610ETP-7DR			
IC310	6-705-992-11	IC HY57V161610ETP-7DR			
IC314	6-703-875-01	IC CDCVF2505PWR			
IC401	6-708-539-01	IC CXD9880TQ			
IC501	6-705-403-01	IC PQ070XZ01ZPH			
IC503	6-705-403-01	IC PQ070XZ01ZPH			
IC504	6-707-119-01	IC TK11218CMCL-G			
IC701	6-702-300-01	IC TK11118CSCL-G			
* IC702	6-706-293-01	IC TVP5150AM1PBSR			
		< TRANSISTOR >			
Q701	8-729-230-49	TRANSISTOR	2SC2712-YG		
		< RESISTOR >			
R101	1-218-965-11	RES-CHIP	10K	5%	1/16W
R102	1-218-953-11	RES-CHIP	1K	5%	1/16W
R103	1-218-941-81	RES-CHIP	100	5%	1/16W
R104	1-218-990-81	SHORT CHIP	0		
R105	1-218-990-81	SHORT CHIP	0		
R106	1-218-953-11	RES-CHIP	1K	5%	1/16W
R109	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R112	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R114	1-218-990-81	SHORT CHIP	0		
R115	1-218-965-11	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R117	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R118	1-218-965-11	RES-CHIP	10K	5%	1/16W
R121	1-218-965-11	RES-CHIP	10K	5%	1/16W
R135	1-218-965-11	RES-CHIP	10K	5%	1/16W
R136	1-218-965-11	RES-CHIP	10K	5%	1/16W
R137	1-218-965-11	RES-CHIP	10K	5%	1/16W
R138	1-218-965-11	RES-CHIP	10K	5%	1/16W
R139	1-218-965-11	RES-CHIP	10K	5%	1/16W
R145	1-218-990-81	SHORT CHIP	0		
R149	1-218-990-81	SHORT CHIP	0		
R150	1-218-935-11	RES-CHIP	33	5%	1/16W
R152	1-218-990-81	SHORT CHIP	0		
R153	1-218-990-81	SHORT CHIP	0		
R156	1-218-965-11	RES-CHIP	10K	5%	1/16W
R158	1-218-965-11	RES-CHIP	10K	5%	1/16W
R160	1-218-965-11	RES-CHIP	10K	5%	1/16W
R161	1-218-965-11	RES-CHIP	10K	5%	1/16W
R162	1-218-965-11	RES-CHIP	10K	5%	1/16W
R163	1-218-965-11	RES-CHIP	10K	5%	1/16W
R164	1-218-965-11	RES-CHIP	10K	5%	1/16W
R165	1-218-990-81	SHORT CHIP	0		
R166	1-218-990-81	SHORT CHIP	0		
R167	1-218-935-11	RES-CHIP	33	5%	1/16W
R168	1-218-935-11	RES-CHIP	33	5%	1/16W
R169	1-218-935-11	RES-CHIP	33	5%	1/16W
R170	1-218-990-81	SHORT CHIP	0		
R172	1-218-965-11	RES-CHIP	10K	5%	1/16W
R173	1-218-965-11	RES-CHIP	10K	5%	1/16W
R174	1-218-965-11	RES-CHIP	10K	5%	1/16W
R175	1-218-965-11	RES-CHIP	10K	5%	1/16W
R176	1-218-965-11	RES-CHIP	10K	5%	1/16W
R177	1-218-990-81	SHORT CHIP	0		
R178	1-218-965-11	RES-CHIP	10K	5%	1/16W
R179	1-218-937-11	RES-CHIP	47	5%	1/16W
R183	1-218-965-11	RES-CHIP	10K	5%	1/16W
R184	1-218-965-11	RES-CHIP	10K	5%	1/16W
R185	1-218-965-11	RES-CHIP	10K	5%	1/16W
R187	1-218-965-11	RES-CHIP	10K	5%	1/16W
R189	1-218-965-11	RES-CHIP	10K	5%	1/16W
R190	1-218-935-11	RES-CHIP	33	5%	1/16W
R191	1-218-965-11	RES-CHIP	10K	5%	1/16W
R195	1-218-965-11	RES-CHIP	10K	5%	1/16W
R196	1-218-935-11	RES-CHIP	33	5%	1/16W
R197	1-218-990-81	SHORT CHIP	0		
R198	1-218-935-11	RES-CHIP	33	5%	1/16W
R206	1-218-935-11	RES-CHIP	33	5%	1/16W
R207	1-218-935-11	RES-CHIP	33	5%	1/16W
R239	1-218-965-11	RES-CHIP	10K	5%	1/16W
R240	1-218-965-11	RES-CHIP	10K	5%	1/16W
R242	1-218-990-81	SHORT CHIP	0		
R244	1-218-990-81	SHORT CHIP	0		
R246	1-218-965-11	RES-CHIP	10K	5%	1/16W
R247	1-218-990-81	SHORT CHIP	0		
R249	1-218-935-11	RES-CHIP	33	5%	1/16W
R251	1-218-935-11	RES-CHIP	33	5%	1/16W
R252	1-218-965-11	RES-CHIP	10K	5%	1/16W
R253	1-218-990-81	SHORT CHIP	0		
R254	1-218-990-81	SHORT CHIP	0		
R255	1-218-990-81	SHORT CHIP	0		
R257	1-218-937-11	RES-CHIP	47	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R303	1-218-990-81	SHORT CHIP	0		
R321	1-218-965-11	RES-CHIP	10K	5%	1/16W
R322	1-218-965-11	RES-CHIP	10K	5%	1/16W
R323	1-218-990-81	SHORT CHIP	0		
R324	1-218-965-11	RES-CHIP	10K	5%	1/16W
R325	1-218-965-11	RES-CHIP	10K	5%	1/16W
R326	1-218-990-81	SHORT CHIP	0		
R341	1-218-990-81	SHORT CHIP	0		
R344	1-218-935-11	RES-CHIP	33	5%	1/16W
R347	1-218-990-81	SHORT CHIP	0		
R350	1-218-935-11	RES-CHIP	33	5%	1/16W
R356	1-218-937-11	RES-CHIP	47	5%	1/16W
R358	1-218-937-11	RES-CHIP	47	5%	1/16W
R359	1-218-937-11	RES-CHIP	47	5%	1/16W
R364	1-218-937-11	RES-CHIP	47	5%	1/16W
R374	1-218-935-11	RES-CHIP	33	5%	1/16W
R380	1-218-937-11	RES-CHIP	47	5%	1/16W
R387	1-218-965-11	RES-CHIP	10K	5%	1/16W
R388	1-218-965-11	RES-CHIP	10K	5%	1/16W
R391	1-218-965-11	RES-CHIP	10K	5%	1/16W
R392	1-218-990-81	SHORT CHIP	0		
R394	1-218-990-81	SHORT CHIP	0		
R396	1-218-935-11	RES-CHIP	33	5%	1/16W
R399	1-218-941-81	RES-CHIP	100	5%	1/16W
R401	1-216-864-11	SHORT CHIP	0		
R402	1-218-935-11	RES-CHIP	33	5%	1/16W
R403	1-218-935-11	RES-CHIP	33	5%	1/16W
R404	1-218-935-11	RES-CHIP	33	5%	1/16W
R405	1-218-990-81	SHORT CHIP	0		
R406	1-218-935-11	RES-CHIP	33	5%	1/16W
R407	1-218-935-11	RES-CHIP	33	5%	1/16W
R408	1-218-935-11	RES-CHIP	33	5%	1/16W
R409	1-218-935-11	RES-CHIP	33	5%	1/16W
R410	1-218-990-81	SHORT CHIP	0		
R411	1-218-929-11	RES-CHIP	10	5%	1/16W
R412	1-218-990-81	SHORT CHIP	0		
R413	1-218-941-81	RES-CHIP	100	5%	1/16W
R414	1-218-935-11	RES-CHIP	33	5%	1/16W
R415	1-218-990-81	SHORT CHIP	0		
R417	1-218-990-81	SHORT CHIP	0		
R418	1-218-990-81	SHORT CHIP	0		
R419	1-218-935-11	RES-CHIP	33	5%	1/16W
R420	1-218-935-11	RES-CHIP	33	5%	1/16W
R421	1-218-935-11	RES-CHIP	33	5%	1/16W
R422	1-218-935-11	RES-CHIP	33	5%	1/16W
R423	1-218-990-81	SHORT CHIP	0		
R424	1-218-935-11	RES-CHIP	33	5%	1/16W
R430	1-218-965-11	RES-CHIP	10K	5%	1/16W
R431	1-218-965-11	RES-CHIP	10K	5%	1/16W
R432	1-218-965-11	RES-CHIP	10K	5%	1/16W
R434	1-218-965-11	RES-CHIP	10K	5%	1/16W
R435	1-218-965-11	RES-CHIP	10K	5%	1/16W
R436	1-218-941-81	RES-CHIP	100	5%	1/16W
R437	1-218-965-11	RES-CHIP	10K	5%	1/16W
R439	1-218-965-11	RES-CHIP	10K	5%	1/16W
R440	1-218-965-11	RES-CHIP	10K	5%	1/16W
R441	1-218-965-11	RES-CHIP	10K	5%	1/16W
R442	1-218-965-11	RES-CHIP	10K	5%	1/16W
R443	1-218-965-11	RES-CHIP	10K	5%	1/16W
R444	1-218-965-11	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R445	1-218-965-11	RES-CHIP	10K	5%	1/16W
R446	1-218-965-11	RES-CHIP	10K	5%	1/16W
R447	1-218-953-11	RES-CHIP	1K	5%	1/16W
R448	1-218-965-11	RES-CHIP	10K	5%	1/16W
R449	1-218-965-11	RES-CHIP	10K	5%	1/16W
R451	1-218-941-81	RES-CHIP	100	5%	1/16W
R501	1-218-990-81	SHORT CHIP	0		
R502	1-216-295-91	SHORT CHIP	0		
R503	1-216-295-91	SHORT CHIP	0		
R506	1-218-990-81	SHORT CHIP	0		
* R507	1-220-185-81	RES-CHIP	1.6K	5%	1/16W
R508	1-218-953-11	RES-CHIP	1K	5%	1/16W
R509	1-216-295-91	SHORT CHIP	0		
R511	1-218-990-81	SHORT CHIP	0		
R512	1-218-990-81	SHORT CHIP	0		
* R513	1-220-185-81	RES-CHIP	1.6K	5%	1/16W
R514	1-218-953-11	RES-CHIP	1K	5%	1/16W
R515	1-216-295-91	SHORT CHIP	0		
R516	1-216-295-91	SHORT CHIP	0		
R601	1-216-295-91	SHORT CHIP	0		
R602	1-216-295-91	SHORT CHIP	0		
R603	1-216-295-91	SHORT CHIP	0		
R604	1-216-295-91	SHORT CHIP	0		
R605	1-218-990-81	SHORT CHIP	0		
R606	1-218-990-81	SHORT CHIP	0		
R607	1-218-990-81	SHORT CHIP	0		
R608	1-218-990-81	SHORT CHIP	0		
R609	1-218-990-81	SHORT CHIP	0		
R610	1-218-990-81	SHORT CHIP	0		
R611	1-218-990-81	SHORT CHIP	0		
R612	1-218-990-81	SHORT CHIP	0		
R613	1-218-990-81	SHORT CHIP	0		
R614	1-218-990-81	SHORT CHIP	0		
R615	1-218-990-81	SHORT CHIP	0		
R616	1-218-990-81	SHORT CHIP	0		
R617	1-218-990-81	SHORT CHIP	0		
R618	1-218-990-81	SHORT CHIP	0		
R619	1-218-990-81	SHORT CHIP	0		
R620	1-218-990-81	SHORT CHIP	0		
R703	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R704	1-218-965-11	RES-CHIP	10K	5%	1/16W
R705	1-218-965-11	RES-CHIP	10K	5%	1/16W
R706	1-218-990-81	SHORT CHIP	0		
R707	1-218-949-11	RES-CHIP	470	5%	1/16W
R708	1-218-977-11	RES-CHIP	100K	5%	1/16W
R709	1-218-965-11	RES-CHIP	10K	5%	1/16W
R710	1-218-965-11	RES-CHIP	10K	5%	1/16W
R711	1-218-965-11	RES-CHIP	10K	5%	1/16W
R712	1-218-965-11	RES-CHIP	10K	5%	1/16W
R713	1-218-965-11	RES-CHIP	10K	5%	1/16W
R714	1-218-965-11	RES-CHIP	10K	5%	1/16W
R717	1-218-935-11	RES-CHIP	33	5%	1/16W
R722	1-218-935-11	RES-CHIP	33	5%	1/16W
R723	1-218-941-81	RES-CHIP	100	5%	1/16W
R724	1-218-990-81	SHORT CHIP	0		
R725	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1103	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1104	1-218-935-11	RES-CHIP	33	5%	1/16W
R1105	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1106	1-218-935-11	RES-CHIP	33	5%	1/16W
R1107	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1108	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1109	1-218-935-11	RES-CHIP	33	5%	1/16W
R1110	1-218-935-11	RES-CHIP	33	5%	1/16W
R1111	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1112	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1113	1-218-990-81	SHORT CHIP	0		
R1114	1-218-935-11	RES-CHIP	33	5%	1/16W
R1115	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1116	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1118	1-218-935-11	RES-CHIP	33	5%	1/16W
R1119	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1120	1-218-935-11	RES-CHIP	33	5%	1/16W
R1122	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1123	1-218-935-11	RES-CHIP	33	5%	1/16W
R1124	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1125	1-218-935-11	RES-CHIP	33	5%	1/16W
R1126	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1127	1-218-935-11	RES-CHIP	33	5%	1/16W
R1136	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1137	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1138	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1139	1-218-990-81	SHORT CHIP	0		
R1141	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1142	1-216-817-11	METAL CHIP	470	5%	1/10W
R1144	1-218-935-11	RES-CHIP	33	5%	1/16W
R1145	1-218-935-11	RES-CHIP	33	5%	1/16W
R1146	1-218-935-11	RES-CHIP	33	5%	1/16W
R1147	1-218-935-11	RES-CHIP	33	5%	1/16W
R1148	1-218-935-11	RES-CHIP	33	5%	1/16W
R1149	1-218-935-11	RES-CHIP	33	5%	1/16W
R1150	1-218-935-11	RES-CHIP	33	5%	1/16W
R1151	1-218-990-81	SHORT CHIP	0		
R1152	1-218-990-81	SHORT CHIP	0		
R1153	1-218-937-11	RES-CHIP	47	5%	1/16W
R1154	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1155	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1156	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1157	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1158	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1159	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1160	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1161	1-218-935-11	RES-CHIP	33	5%	1/16W
R1162	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1165	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1166	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1167	1-218-990-81	SHORT CHIP	0		
R1169	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1170	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1175	1-218-929-11	RES-CHIP	10	5%	1/16W
R1176	1-218-935-11	RES-CHIP	33	5%	1/16W
R1178	1-218-937-11	RES-CHIP	47	5%	1/16W
R1179	1-218-990-81	SHORT CHIP	0		
R1188	1-218-990-81	SHORT CHIP	0		
R1189	1-218-990-81	SHORT CHIP	0		
R1197	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1198	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1199	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1304	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1307	1-218-973-11	RES-CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R1309	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1311	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1313	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1316	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1318	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1324	1-218-990-81	SHORT CHIP	0		
R1325	1-218-990-81	SHORT CHIP	0		
R1328	1-218-990-81	SHORT CHIP	0		
R1329	1-218-990-81	SHORT CHIP	0		
R1330	1-218-990-81	SHORT CHIP	0		
R1338	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1339	1-218-990-81	SHORT CHIP	0		
R1341	1-218-990-81	SHORT CHIP	0		
R1343	1-218-990-81	SHORT CHIP	0		
R1346	1-218-990-81	SHORT CHIP	0		
R1349	1-218-935-11	RES-CHIP	33	5%	1/16W
R1350	1-218-935-11	RES-CHIP	33	5%	1/16W
R1353	1-218-935-11	RES-CHIP	33	5%	1/16W
R1354	1-218-935-11	RES-CHIP	33	5%	1/16W
R1357	1-218-990-81	SHORT CHIP	0		
R2101	1-218-990-81	SHORT CHIP	0		
R2103	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2104	1-218-990-81	SHORT CHIP	0		
R2105	1-218-941-81	RES-CHIP	100	5%	1/16W
R2106	1-218-941-81	RES-CHIP	100	5%	1/16W
R2107	1-218-945-11	RES-CHIP	220	5%	1/16W
R2108	1-218-945-11	RES-CHIP	220	5%	1/16W
R2111	1-218-990-81	SHORT CHIP	0		
R2112	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2115	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2116	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2117	1-218-935-11	RES-CHIP	33	5%	1/16W
R2118	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2120	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2121	1-218-990-81	SHORT CHIP	0		
R2123	1-218-990-81	SHORT CHIP	0		
R2124	1-218-990-81	SHORT CHIP	0		
		< COMPOSITION CIRCUIT BLOCK >			
RB101	1-234-378-21	RES, NETWORK	10K (1005X4)		
RB102	1-234-378-21	RES, NETWORK	10K (1005X4)		
RB103	1-234-378-21	RES, NETWORK	10K (1005X4)		
RB104	1-234-378-21	RES, NETWORK	10K (1005X4)		
RB105	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB106	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB107	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB108	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB109	1-234-378-21	RES, NETWORK	10K (1005X4)		
RB110	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB111	1-234-378-21	RES, NETWORK	10K (1005X4)		
RB112	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB113	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB114	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB115	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB116	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB117	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB118	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB119	1-242-963-21	RES, NETWORK	33 (1005X4)		
RB120	1-242-963-21	RES, NETWORK	33 (1005X4)		

Ref. No.	Part No.	Description		Remarks
RB125	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB126	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB127	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB128	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB209	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB210	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB211	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB212	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB213	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB228	1-234-714-11	RES, NETWORK	56 (1005X4)	
RB229	1-234-714-11	RES, NETWORK	56 (1005X4)	
RB230	1-234-714-11	RES, NETWORK	56 (1005X4)	
RB231	1-234-714-11	RES, NETWORK	56 (1005X4)	
RB232	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB233	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB301	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB302	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB303	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB304	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB305	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB306	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB315	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB316	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB319	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB320	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB321	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB322	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB324	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB325	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB326	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB327	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB329	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB330	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB331	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB332	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB333	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB334	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB335	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB336	1-234-371-21	RES, NETWORK	47 (1005X4)	
RB405	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB406	1-242-963-21	RES, NETWORK	33 (1005X4)	
RB409	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB410	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB411	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB412	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB413	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB414	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB415	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB601	1-234-400-21	CONDUCTOR, NETWORK	(2010X4)	
RB602	1-234-400-21	CONDUCTOR, NETWORK	(2010X4)	
RB701	1-234-378-21	RES, NETWORK	10K (1005X4)	
RB702	1-234-378-21	RES, NETWORK	10K (1005X4)	
		< VIBRATOR >		
X101	1-795-651-21	VIBRATOR, CRYSTAL (25MHz)		
X701	1-795-545-21	VIBRATOR, CRYSTAL (SMD) (14.31818MHz)		

Ref. No.	Part No.	Description	Remarks
⚠	1-468-929-11	POWER BLOCK(SRV1793UC)	
		**********	
		<CAPACITOR>	
⚠C101		METALLIZED 0.22uF 250V	
⚠C103		CERAMIC 330pF 50V	
⚠C104		CERAMIC 330pF 50V	
⚠C112		CERAMIC 1000pF 50V	
		<CONNECTOR>	
⚠CN101		AC INLET	
		<FUSE>	
⚠F101		FUSE T3.15A/250V	
		<IC>	
⚠IC101		IC MIP-2E7	
		<COIL>	
⚠L101		LFT	
⚠L102		LFT	
		<CHIP FUSE>	
⚠P301		CHIP 1.25A	
⚠P401		CHIP 2.5A	
⚠P601		CHIP 0.8A	
⚠P602		CHIP 5A	
⚠P501		CHIP 2A	
⚠P502		CHIP 2A	
⚠P503		CHIP 2A	
		<PHOTO COUPLER>	
⚠PC101		PHOTO COUPLER PC123	
		<RESISTOR>	
⚠R101		CORBON 2.2M 1/2W	
		<TRANSFORMER>	
⚠T101		SWITCHING TRANSFORMER	
		<VARISTOR>	
⚠Z101		ERZV10DK471	
		ACCESSORIES	
		**********	
⚠	1-823-701-11	CORD, POWER	
	1-751-271-71	CORD, CONNECTION (AV)	
	1-765-635-71	CORD, CONNECTION (NTSC)	
	1-759-586-22	CONTROLLER, VIDEO (AV MOUSE)	
	1-479-361-11	REMOTE COMMANDER (RMT-D218A)	
	2-635-892-11	MANUAL, INSTRUCTION (American) (US)	
	2-635-892-21	MANUAL, INSTRUCTION (French) (CND)	
	2-635-971-21	GUIDE, QUICK START (CND)	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Sony Corporation
Home Electronics Network Company

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